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NPIC/R-218/66-13  
14 June 1968

Declass Review, NIMA/DoD

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NOTICE

This is the thirteenth in a series of updated and supplementary items to be inserted by page number in NPIC/R-218/66, Southeast Asia Activity Report, POL Facilities, North Vietnam. The effective date of each page is printed in the upper right-hand corner under the NPIC report number and in the tables of contents.

Pages which have been superceded and are no longer required should be destroyed in accordance with applicable security regulations.

The overall classification of this report is SECRET/ however, individual pages which can be classified CONFIDENTIAL or CONFIDENTIAL will be so identified.

Starting with this group of items, a number will be added to the report number; i.e., NPIC/R-218/66-13. The number thirteen indicates this is the thirteenth issuance of items for this report.

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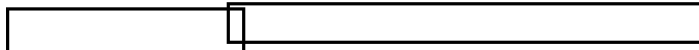
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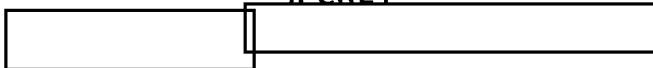
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Note: (S) denotes pages classified SECRET  
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## INTRODUCTION

This report has been prepared in cooperation with CIA and DIA to include CIA/ORR and the DIA Production Center validation of published estimated storage in categories A and B. It is designed to present a comprehensive view of the POL storage and handling facilities in North Vietnam. It is not necessarily all-inclusive, inasmuch as the source of information is limited primarily to photography. As new storage areas are identified, or as changes occur in previously reported areas, periodic supplements will be disseminated, keeping the North Vietnam POL storage data base as current as possible.

Storage areas in this report are divided into four categories, each presented in a separate section.

Category A. Permanent Storage and Handling Areas. These areas consist of conventional, large, aboveground, cylindrical tank and related handling facilities and will occasionally include some underground storage.

Category B. Dispersed Storage Areas. These areas consist of semi-permanent, widely-dispersed storage, usually consisting of 7-MT-type, 12-MT-type, or 25-MT-type tanks placed in underground bunkers.

Category C. Drum Storage Areas. These areas consist of non-permanent, aboveground, open storage of US 55-gallon or US 30-gallon-type drums.

Category D. Miscellaneous. This category includes POL storage, transporta-

tion, and other related miscellaneous facilities not covered in other categories. Transshipment and handling facilities not located at regular storage areas are contained in this category.

A table of contents is included for each category and a small-scale plot map is included for each of the first three categories. In addition, a large-scale map and photo is provided for each item.

Annex I, prepared by the DIA Production Center, is divided into sections XA and XB, corresponding to Categories A and B. These sections contain detailed target analyses of the POL storage and handling facilities. Included in the descriptions is information on the significance and capacities of the facilities, target and defense environments, probable impact upon North Vietnam if destroyed, length of time required for restoration, and results of air strikes.

For purposes of this report, a large POL tank refers to a 25-MT tank, a standard POL tank refers to a 12-MT tank, and a small POL tank refers to a 7-MT tank. POL drums refer to standard US 55-gallon-type drums, unless otherwise stated. Reference to tank alone in the text describing category B facilities is used when referring to 12-MT tanks.

The type of photography used to provide information for this report generally precludes detailed mensuration; therefore, capacities are necessarily provided as estimated capacities.

All installations reported are indexed by geographic coordinates in ascending order at the end of the report.

In accordance with standard practices of the petroleum industry, capacities in all categories of this report are expressed in terms of metric tons at the rate of one metric ton for each cubic meter of volume. A cubic meter of water (about 265 US gallons) weighs one metric ton. A cubic meter of petroleum generally weighs less than one metric ton, the exact weight depending upon the specific gravity of the particular type of petroleum. A specific gravity of 0.84 may be used to estimate the weight of a cubic meter of average petroleum (see Annex II); thus, one cubic meter of average petroleum would weigh 0.84 metric tons. Capacities shown in this report are gross. Because of "deadwood" inside tanks, (e.g. the space occupied by pipes, manholes, and internal structural supports, and space left to preclude spillage at or near the tops of tanks), the actual and safe capacity may be about 95 percent of gross capacity.

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## BACKGROUND

The economy of North Vietnam is predominantly agricultural, with only a limited amount of industry. Reports from the limited surveys conducted by the Ministry of Industry, North Vietnam, have made no reference to discoveries of crude oil, or natural gas, and the geological prospects for such discoveries are not favorable. Small deposits of oil shale are located in several of anthracite coal areas; however, North Vietnam has no facilities for the processing of this resource. There are no refineries for processing natural crude oil or natural gas; therefore, all petroleum products must be imported. The petroleum facilities of North Vietnam are now limited to those required to receive, store, and distribute imported refined products.

There are no known pipelines in North Vietnam. Petroleum products received in the port of Hai Phong by tanker are distributed by tank car, tank truck, truck, river craft, and coastal vessel to other storage areas. Products are probably then distributed to consumers in drums or other packaged form. Consumption restraints on petroleum products are therefore, directly related to the amount which can be stored in any given area.

Essentially all POL storage prior to 1964 was located in permanent storage areas (Category A) such as Hai Phong, Ha Noi (Thanh Am) and Vinh. These three areas accounted for 70 percent of North Vietnam bulk storage capacity prior to 1964. The first two U.S. strikes against POL storage facilities were directed

against the Vinh Petroleum Products Storage in August 1964 and February 1965, respectively. Shortly thereafter, in [redacted] the first photographic evidence became available depicting the North Vietnamese commencing their initial POL dispersal program with the storing of cylindrical tanks in earth-covered bunkers. All of the dispersed sites (Category B) have been, or probably will be, concealed by one or more methods. Concealment methods observed to date include locating the site in an existing graveyard (a technique causing it to appear to be a burial ground), applying disruptive paint on the tanks, utilizing existing terrain features such as tree lines to conceal tanks, and planting over buried or semi-buried tanks to make them blend in with surrounding field patterns. Also in [redacted] North Vietnam began utilizing numerous open storage areas for 55-gallon drums (Category C).

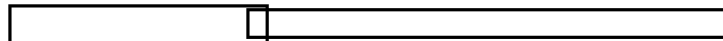
In 1964, North Vietnam had approximately ten POL storage areas; however, by [redacted] at least 75 POL storage areas had been identified. This number does not include numerous small drum storage areas.

It is anticipated that continued and expanded efforts by the United States to destroy known POL storage areas will force North Vietnam to disperse and conceal POL stores to an even greater extent; thus, possibly making it more difficult to locate and strike these dispersed areas, but also further complicating the problem of POL distribution for North Vietnam.

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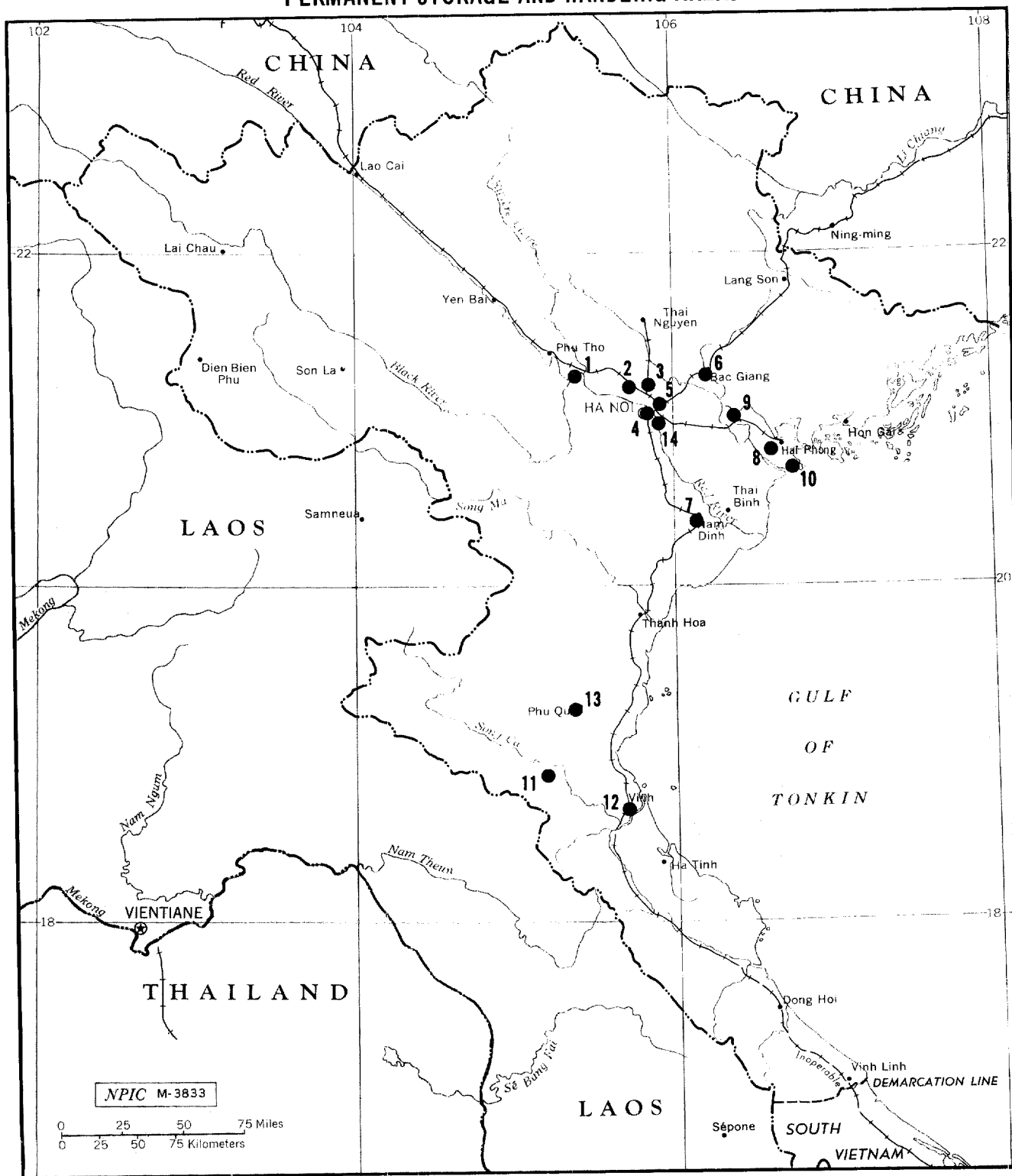
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| 2       | Phuc Yen Airfield POL Storage Area         | A3,4 (Original)       |
| 3       | Ha Gia Petroleum Products Storage SSW UG   | A5,6 (Mar 67) (C)     |
| 4       | Ha Noi Petroleum Products Storage Thanh Am | A7,8 (Sep 66)         |
| 5       | Nguyen Khe Petroleum Storage               | A9,10 (Nov 66)        |
| 6       | Bac Giang Petroleum Products Storage       | A11,12 (Sep 66) (C)   |
| 7       | Nam Dinh Petroleum Products Storage        | A13,14 (Original) (C) |
| 8       | Hai Phong Petroleum Products Storage       | A15,16 (Original) (C) |
| 9       | Duong Nham Petroleum Products Storage      | A17,18 (Nov 66)       |
| 10      | Do Son Petroleum Products Storage          | A19,20 (May 67) (C)   |
| 11      | Phu Van POL Storage                        | A21,22 (Dec 66)       |
| 12      | Vinh Petroleum Products Storage            | A23,24 (Nov 66)       |
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| 14      | Hanoi/Gia Lam Airfield POL Storage Area    | A27,28 (Original)     |

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CATEGORY A  
PERMANENT STORAGE AND HANDLING AREAS



A-III

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25X1A

WJ453547  
UTM COORDINATES

2117N 10526E  
GEOGRAPHIC COORDINATES

**NAME:** VIET TRI PETROLEUM PRODUCTS STORAGE

**LOCATION:** IMMEDIATELY SOUTH OF VIET TRI, AT THE CONFLUENCE OF THE RED AND CLARE RIVERS, 28 NM NW OF HA NOI

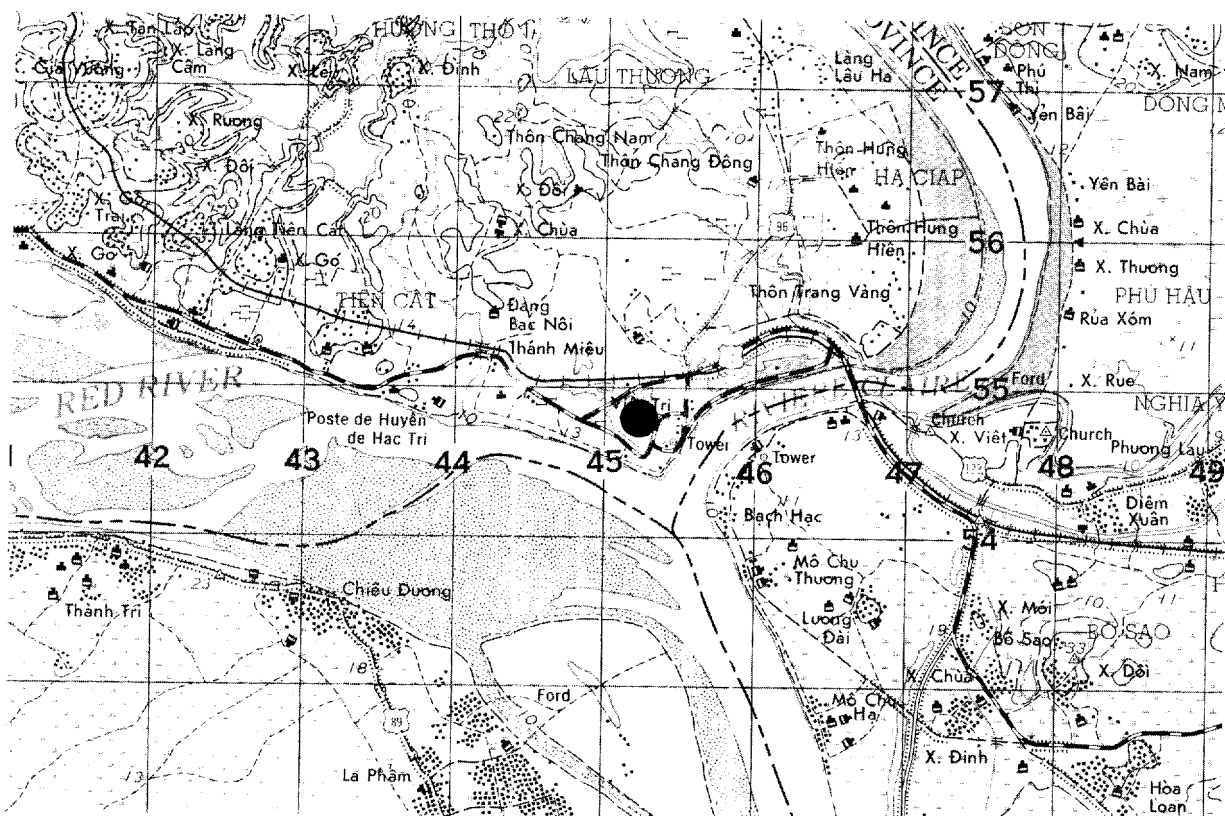
**DESCRIPTION:** PRIOR TO FIRST STRIKE, FACILITY CONTAINED 3 MEDIUM ABOVEGROUND, 2 MEDIUM UNDERGROUND CYLINDRICAL, AND 4 SERVICE TANKS. THE LARGE TANK OBSERVED ON PHOTOGRAPHY [REDACTED] WAS REMOVED. PHOTOGRAPHY OF [REDACTED] REVEALS 3 MEDIUM TANKS UNUSABLE DUE TO BOMB DAMAGE OR DISMANTLING; 1 UNDERGROUND TANK UNDAMAGED AND 1 WITH TOP SECTION UNCOVERED; AND 2 DESTROYED, 1 DAMAGED, AND 1 UNDAMAGED SERVICE TANK. APPROXIMATELY 450 DRUMS (PROBABLY EMPTY) ARE STACKED NEAR TRANSSHIPMENT POINT.

**ESTIMATED CAPACITY:** PRE-STRIKE TANK 1,670 MT (EXCLUSIVE OF UNDERGROUND TANKS)  
POST-STRIKE TANK 25 MT (EXCLUSIVE OF UNDERGROUND TANKS)

**MAP REFERENCES:** AMS SERIES L701, SHEET 6074 I, 1ST ED, JUN 65 (U)  
AMS SERIES JOG(G) 1501, SHEET NF 48-11, 1ST ED, JUN 65 (U)

**PHOTO REFERENCE:** [REDACTED]

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**DISPERSED STORAGE AREAS**

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| 2              | Van Lung Petroleum Products Storage UG                    | B3,4 (Original) (C)   |
| 3              | Van Lung Petroleum Products Storage West UG               | B5,6 (Original) (C)   |
| 4              | Hoang Mai POL Storage Area                                | B7,8 (Original)       |
| 5              | Ila Noi Petroleum Products Thi Cam                        | B9,10 (Original)      |
| 6              | Bai Thuong Petroleum Products Storage UG Southeast        | B11,12 (Aug 67) (C)   |
| 7              | Son La Petroleum Products Storage                         | B13,14 (Original) (C) |
| 8              | Thuong Thon Petroleum Products Storage UG                 | B15,16 (Jan 67) (C)   |
| 9              | Ngoc Son Petroleum Products Storage PUG                   | B17,18 (Original) (C) |
| 10             | Thai Lai Petroleum Products Storage                       | B19,20 (Sep 66)       |
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| 32             | Nui Tap Tinh POL Storage Area                             | B63,64 (Original) (C) |
| 33             | Sac Le POL Storage Area                                   | B65,66 (Original) (C) |
| 34             | Phu Dong POL Storage Area                                 | B67,68 (Original) (C) |
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| 36             | Phu Loc Petroleum Products Storage                        | B71,72 (Sep 66) (C)   |
| 37             | Thanh Hoa POL Storage Area                                | B73,74 (Original) (C) |

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| 43             | Kep Ha Petroleum Products Storage                 | B85,86 (Original) (C) |
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| 106     | Phu Qui Petroleum Products Storage PUG No 2        | B211,212 (Nov 67) (C) |
| 107     | Khon Phai Dan Petroleum Products Storage           | B213,214 (Nov 67) (S) |
| 108     | Na Pia Petroleum Products Storage NW               | B215,216 (Nov 67) (S) |

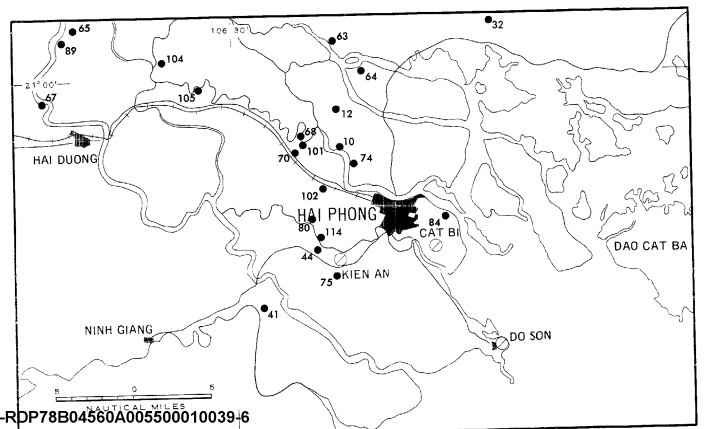
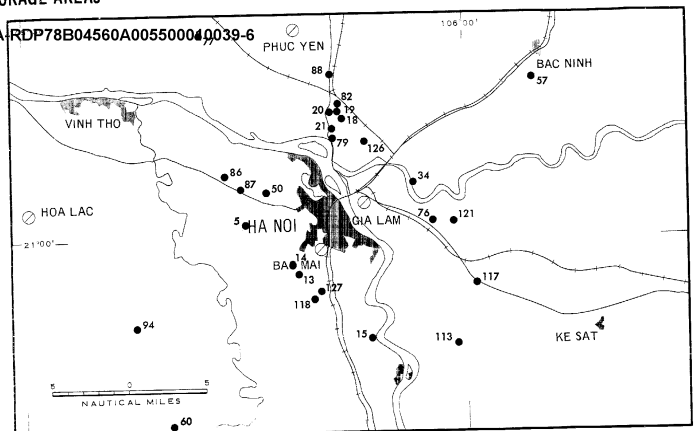
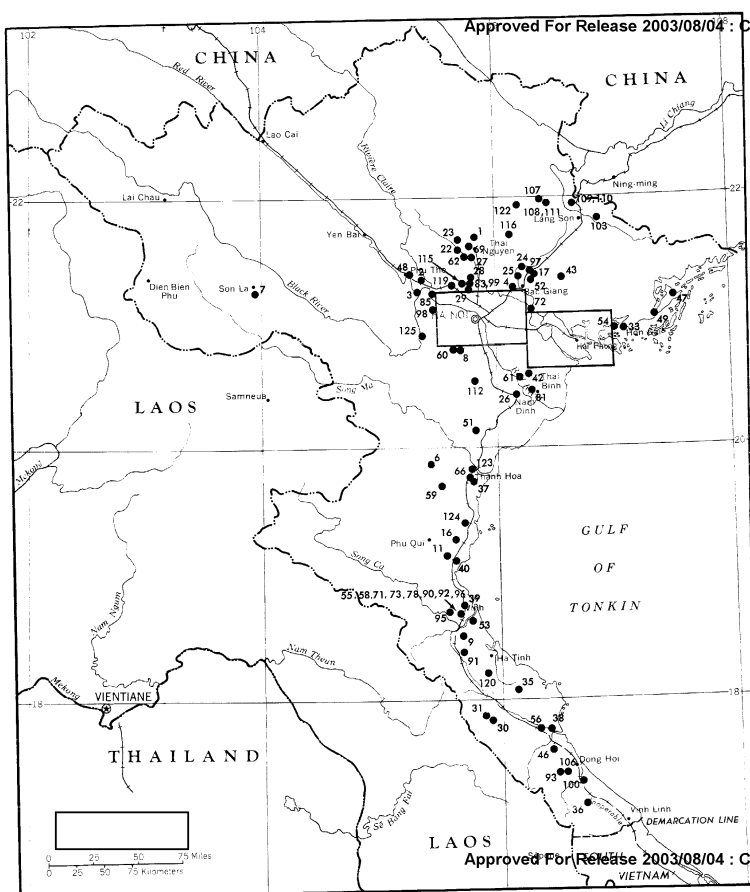
Note: (S) denotes pages classified SECRET  
denotes pages classified CONFIDENTIAL; all other pages are classified CONFIDENTIAL

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| <u>Map Key</u> | <u>Installation Name</u>                     | <u>Effective Page</u> |
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| 109            | Dong Dang Petroleum Products Storage No 2    | B217,218 (Nov 67) (S) |
| 110            | Dong Dang Petroleum Products Storage No 1    | B219,220 (Nov 67) (S) |
| 111            | Na Pia Petroleum Products Storage            | B221,222 (Nov 67) (S) |
| 112            | Lang Coc Petroleum Products Storage          | B223,224 (Jan 68) (C) |
| 113            | Binh Phu Petroleum Products Storage North    | B225,226 (Jan 68) (C) |
| 114            | Kieu Yen Thuong Petroleum Products Storage   | B227,228 (Jan 68) (C) |
| 115            | Hien Luong Petroleum Products Storage        | B229,230 (Jan 68)     |
| 116            | Hoan Ha Petroleum Products Storage           | B231,232 (Jan 68) (S) |
| 117            | Ban Yen Nhan Petroleum Products Storage      | B233,234 (Jan 68) (S) |
| 118            | Quynh Do Petroleum Products Storage          | B235,236 (Jan 68) (S) |
| 119            | Tien Huong Petroleum Products Storage        | B237,238 (Jan 68) (C) |
| 120            | Bau Me Petroleum Products Storage            | B239,240 (Jan 68) (C) |
| 121            | Duong Xa Petroleum Products Storage          | B241,242 (Jan 68)     |
| 122            | Hoan Chung Petroleum Products Storage        | B243,244 (Jun 68) (S) |
| 123            | Thanh Hoa Petroleum Products Storage South 1 | B245,246 (Jun 68) (C) |
| 124            | Ha Xuan Mai Petroleum Products Storage       | B247,248 (Jun 68) (C) |
| 125            | Xom Lam Petroleum Products Storage           | B249,250 (Jun 68) (C) |
| 126            | Mai Hien Petroleum Products Storage          | B251,252 (Jun 68)     |
| 127            | Quynh Do Petroleum Products Storage (Area 2) | B253,254 (Jun 68)     |

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(C) denotes pages classified CONFIDENTIAL; all other pages are classified CONFIDENTIAL

# DISPERSED STORAGE AREAS



25X1A

2139N 10550E  
GEOGRAPHIC COORDINATES

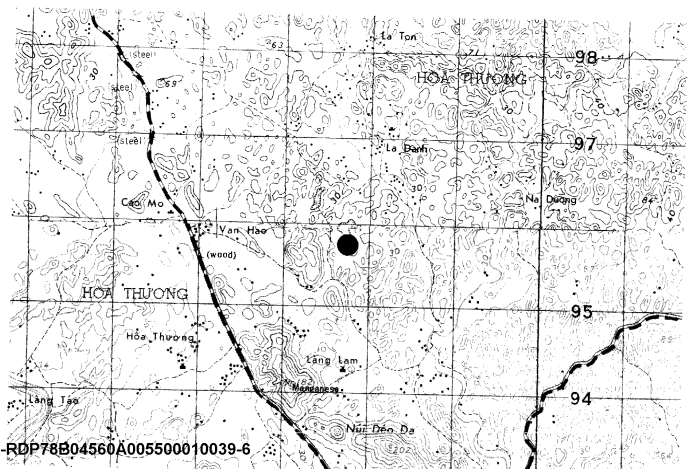
**DESCRIPTION:** STORAGE AREA CONSISTS OF 2 ADJACENT SITES. EAST AREA CONTAINS APPROXIMATELY 116 BUNKERED TANKS, 6 UNBURIED MEDIUM TANKS, 15 EXCAVATIONS, AND APPROXIMATELY 4,000 DRUMS DISPERSED UNDER TREES. WEST AREA, 0.3 NM WEST, CONTAINS AT LEAST 475 DRUMS IN OPEN STORAGE AND IN 9 EXCAVATIONS AND 9 ADDITIONAL EXCAVATIONS. BOMB CRATERS ARE OBSERVED IN EACH AREA.

**ESTIMATED CAPACITY:** TANK 1,464 MT DRUM 895 MT

MAP REFERENCES: AMS SERIES L701, SHEET 6175-I, 1ST ED, OCT 63 (U)  
AMS SERIES JOG(G) 1501, SHEET NF 48-11, 1ST ED, JUN 65 (U)

PHOTO REFERENCE:

25X1D



25X1C

SECRET

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25X1

(INFORMATION ON THIS PAGE IS CONFIDENTIAL)

25X1C

25X1

THANH LANG PETROLEUM PRODUCTS STORAGE PUG

XJ676195

2058N 10636E

UTM COORDINATES

GEOGRAPHIC COORDINATES



25X1C

B24

SECRET

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25X1



25X1C

SECRET

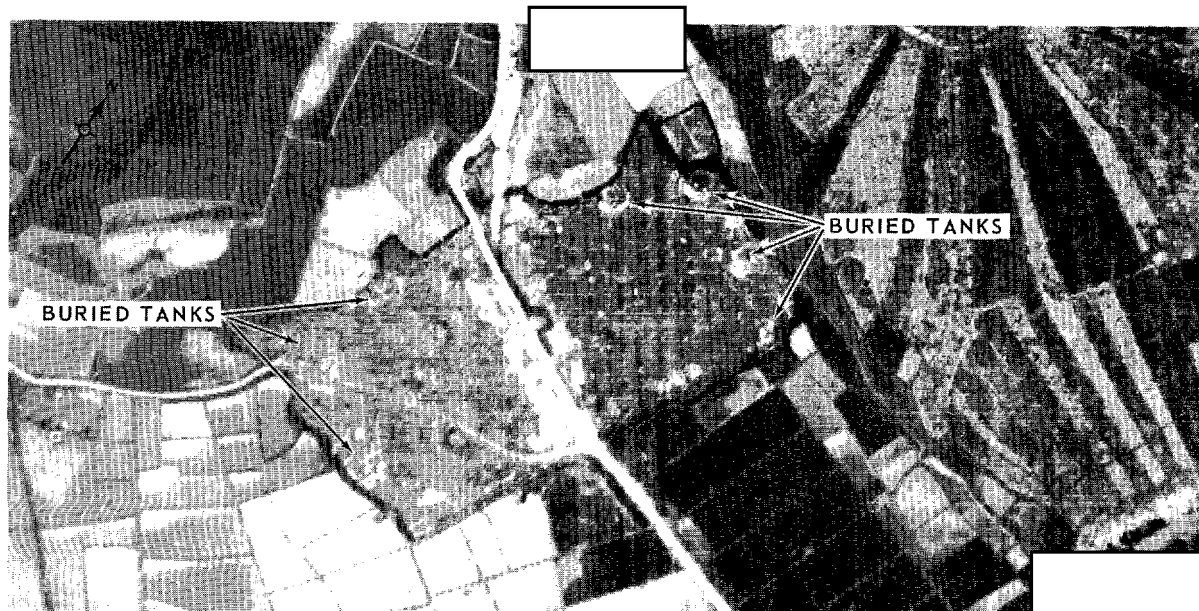
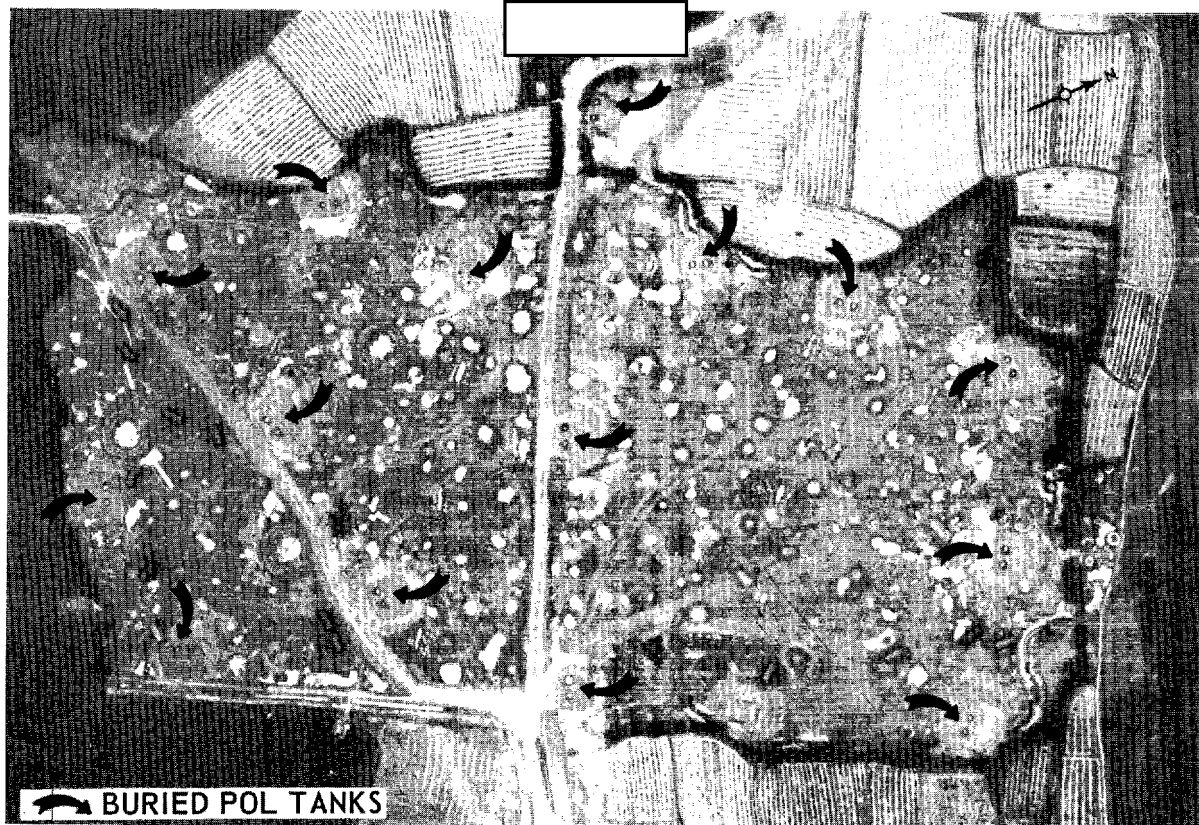
NPIC/R 218/66-13  
14 JUNE 1968

Approved For Release 2003/09/04 : CIA-RDP78B04560A005500010039-6

HA NOI PETROLEUM PRODUCTS STORAGE UG THANH LIET (AREA 1)

WJ846182  
UTM COORDINATES

205750N 1054850E  
GEOGRAPHIC COORDINATES



25X1C

B26

Approved For Release 2003/09/04 : CIA-RDP78B04560A005500010039-6

SECRET

SECRET

NPIC/R-218/66-13  
14 JUNE 1968

25X1A

|  |                 |                        |
|--|-----------------|------------------------|
|  | WJ843191        | 205820N 1054840E       |
|  | UTM COORDINATES | GEOGRAPHIC COORDINATES |

**NAME:** HA NOI PETROLEUM PRODUCTS STORAGE UG THANH LIET (AREA 2)

**LOCATION:** 0.7 NM NW OF THANH LIET AND 3.6 NM SSW OF HA NOI.

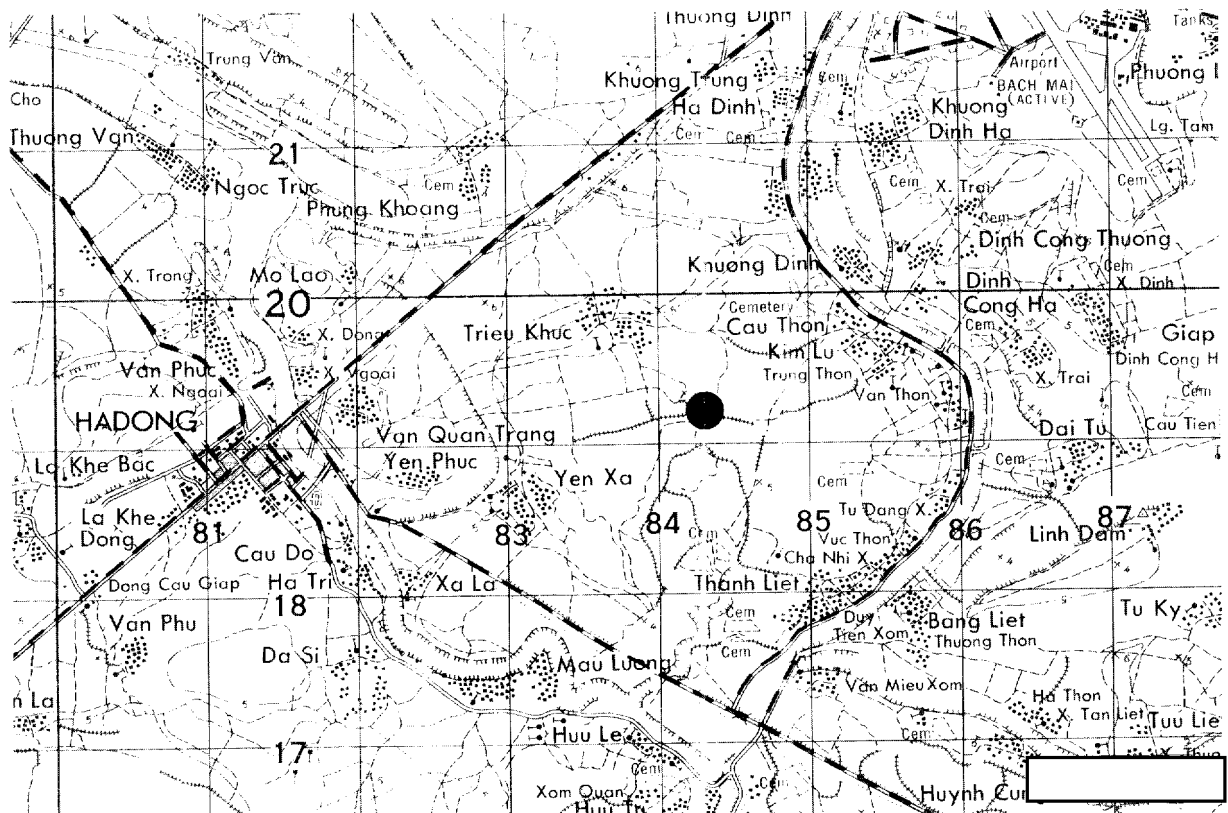
**DESCRIPTION:** PHOTOGRAPHY [REDACTED] REVEALS SITE UNDER CONSTRUCTION CONTAINING 2 BURIED TANKS, 8 UNBURIED TANKS, AND 24 EXCAVATIONS. PHOTOGRAPHY [REDACTED] REVEALS COMPLETED SITE CONTAINING 104 SMALL TANKS BURIED IN PAIRS.

**ESTIMATED CAPACITY:** TANK 728 MT

**MAP REFERENCES:** AMS SERIES L701, SHEET 6173 I, 3D ED, MAR 61 (U)  
AMS SERIES JOG(A) 1501, SHEET NF 48-15, 1ST ED, JUN 65 (U)

**PHOTO REFERENCE:** [REDACTED]

25X1D



25X1C

327

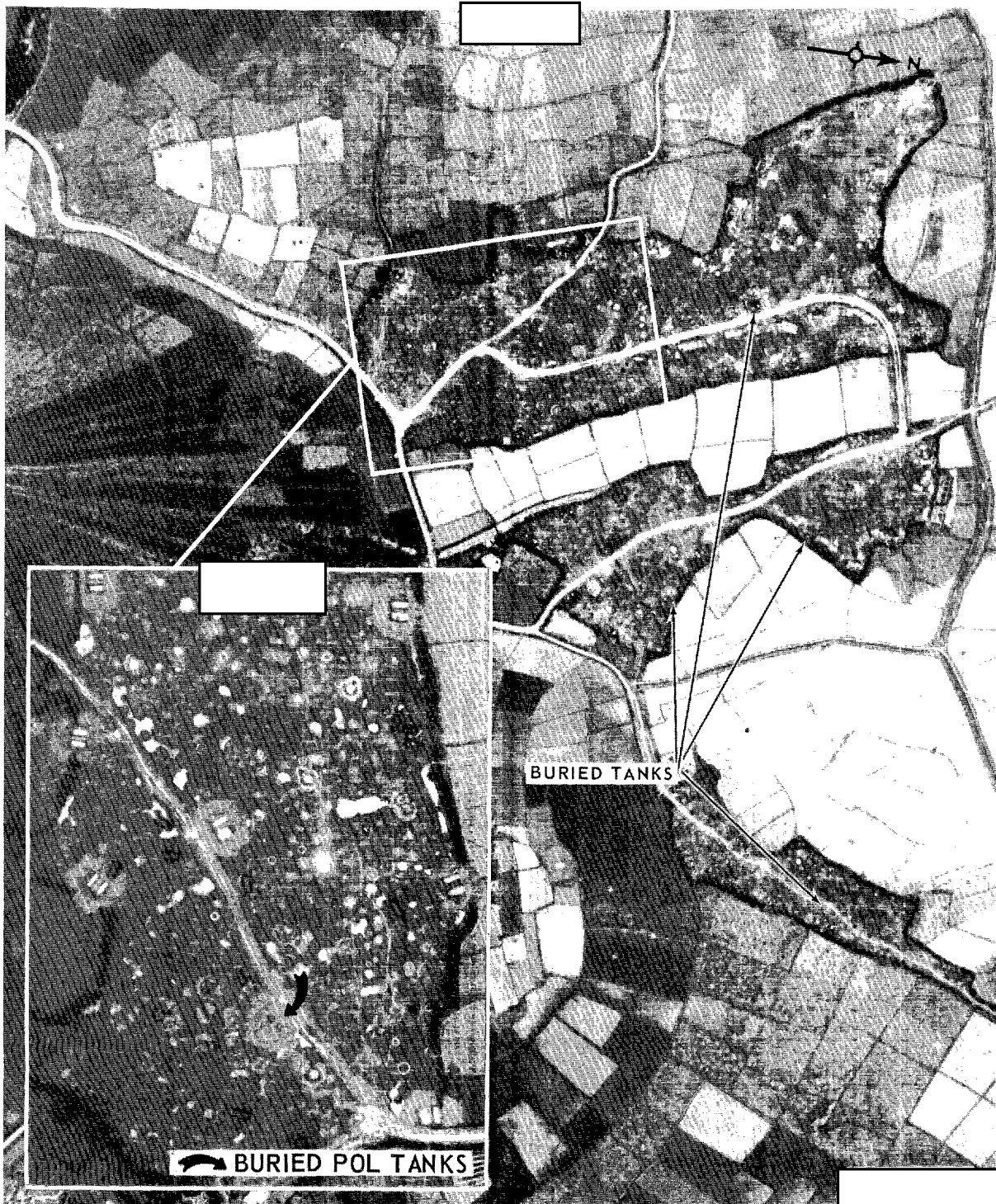
SECRET



HA NOI PETROLEUM PRODUCTS STORAGE UG THANH LIET (AREA 2)

WJ843191  
UTM COORDINATES

205820N 1054840E  
GEOGRAPHIC COORDINATES



B28

(INFORMATION ON THIS PAGE IS CONFIDENTIAL)

25X1A

25X1C

WJ932103  
UTM COORDINATES

2053N 10553E  
GEOGRAPHIC COORDINATES

**NAME:** BANG SO PETROLEUM PRODUCTS STORAGE PUG

**LOCATION:** 0.3 NM EAST OF BANG SO AND 9 NM SSE OF HA NOI ON WEST BANK OF THE RED RIVER

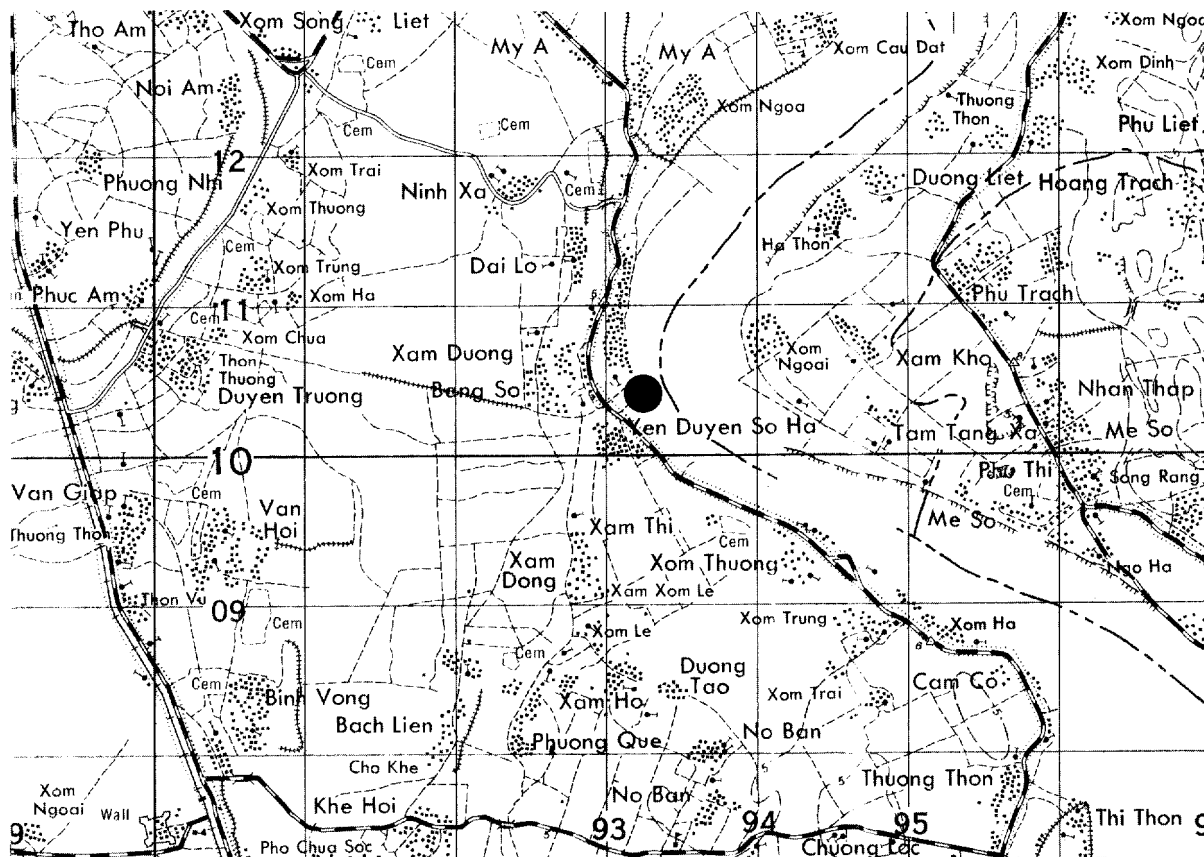
**DESCRIPTION:** STORAGE SITE CONTAINS 6 LARGE POL TANKS, 7 PROBABLY BURIED POL TANKS, AND 17 EXCAVATIONS.

**ESTIMATED CAPACITY: TANK 234 MT**

**MAP REFERENCES:** AMS SERIES L701, SHEET 6173 I, 3D ED, MAR 61 (U)  
AMS SERIES JOG(G) 1501, SHEET NF 48-15, 1ST ED, JUN 65 (U)

**PHOTO REFERENCE:**

25X1D



25X1C  
Approved For Release 2003/08/04 : CIA-RDP78B04560A005500010039-6

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**SECRET**

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NR 6/8/66-13  
14 JUNE 1968

25X1A

|  |                 |                        |
|--|-----------------|------------------------|
|  | XK237134        | 214920N 1061150E       |
|  | UTM COORDINATES | GEOGRAPHIC COORDINATES |

NAME: HOAN CHUNG PETROLEUM PRODUCTS STORAGE

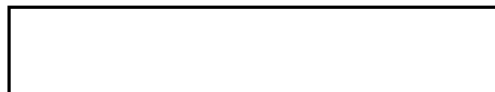
LOCATION: 0.7 NM NNE OF HOAN CHUNG ON THE NORTH SIDE OF ROUTE 1B.

DESCRIPTION: STORAGE AREA APPEARED TO BE NEARING COMPLETION WHEN FIRST OBSERVED ON PHOTOGRAPHY [REDACTED] AND CONTAINED 74 PARTIALLY UNDERGROUND TANKS BUNKERED IN GROUPS OF 2 TO 4 TANKS EACH, AND 4 EMPTY EXCAVATIONS. PHOTOGRAPHY [REDACTED] REVEALED PREVIOUSLY OBSERVED SPOILAGE TO BE OVERGROWN WITH VEGETATION.

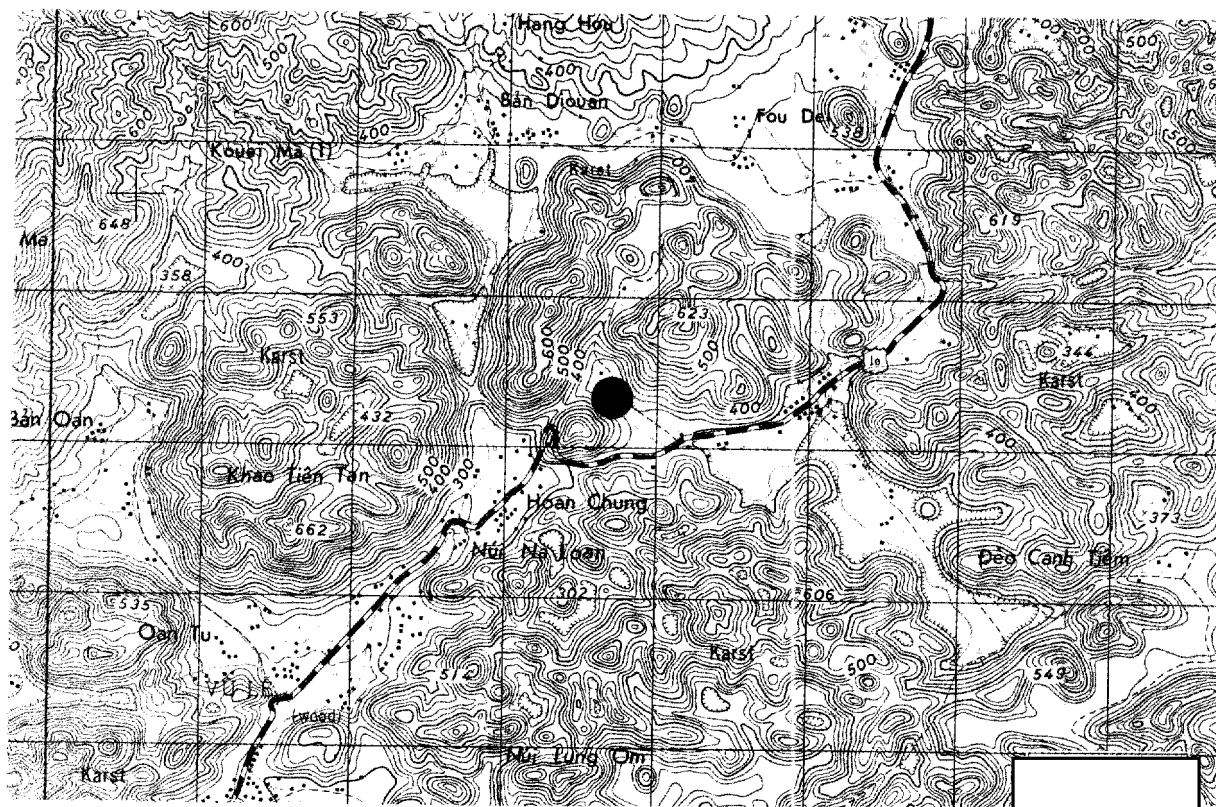
ESTIMATED CAPACITY: TANK 888 MT

MAP REFERENCES: AMS SERIES L7014, SHEET 6252 IV, 1ST ED, 1965 (U)  
AMS SERIES JOG(G) 1501, SHEET NF 48-11, 1ST ED, JUN 65 (U)

PHOTO REFERENCE:



25X1D



25X1C

B243

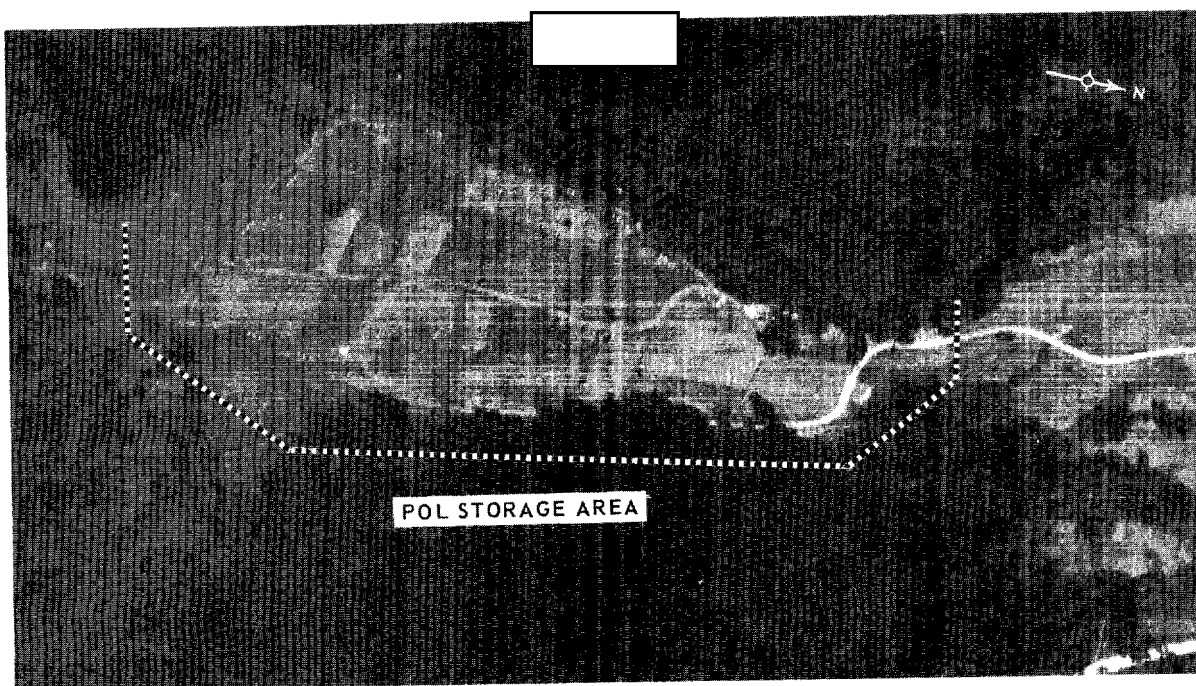


25X1

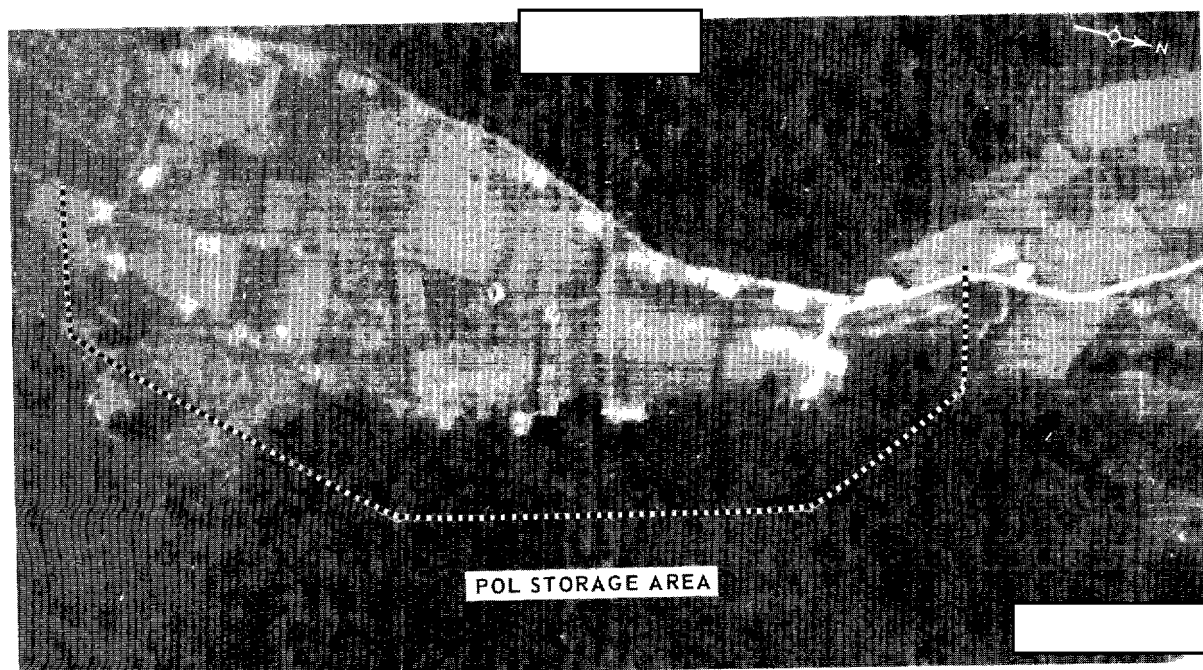
HOAN CHUNG PETROLEUM PRODUCTS STORAGE

XK237134  
UTM COORDINATES

214920N 1061150E  
GEOGRAPHIC COORDINATES



25X1



25X1

25X1

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25X1C

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Approved For Release 2003/08/04 : CIA-RDP78B04560A005500010039-6

14 JUNE 1968

(INFORMATION ON THIS PAGE IS CONFIDENTIAL)

25X1A



WG806907

194843N 1054614E

UTM COORDINATES

GEOGRAPHIC COORDINATES

NAME: THANH HOA PETROLEUM PRODUCTS STORAGE SOUTH 1

LOCATION: ON NW EDGE OF THANH HOA, ADJACENT TO A RAIL SPUR.

DESCRIPTION: STORAGE AREA CONTAINS 17 SEPARATELY BUNKERED TANKS.

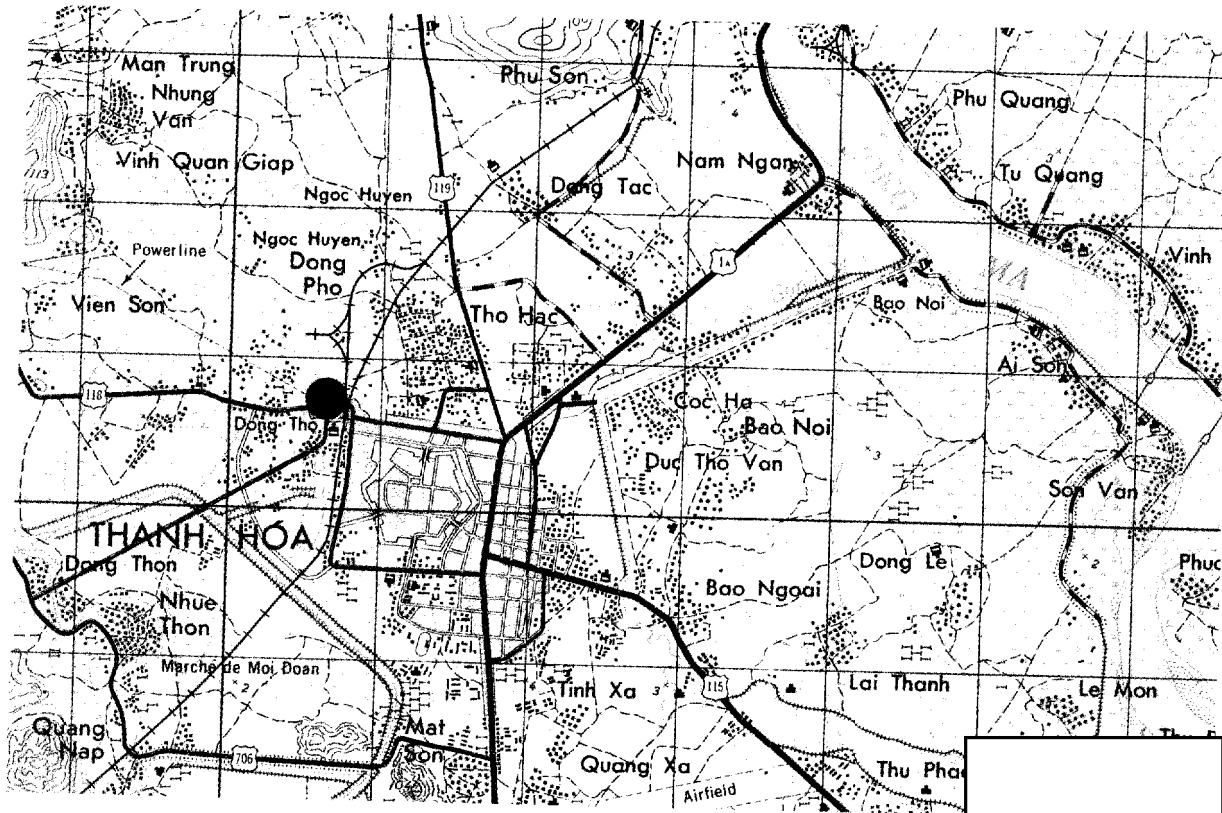
ESTIMATED CAPACITY: TANK 204 MT

MAP REFERENCES: AMS SERIES L7014, SHEET 6148-I, 1ST ED, 1965 (U)  
 AMS SERIES JOG(G) 1501, SHEET NE 48-3, 1ST ED, JUN 65 (U)

PHOTO REFERENCE:



25X1D



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25X1C

B245

SECRET

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25X1

THANH HOA PETROLEUM PRODUCTS STORAGE SOUTH 1

WG806907

UTM COORDINATES



194843N 1054614E

GEOGRAPHIC COORDINATES



25X1

B246

| BE NUMBER | UTM COORDINATES | GEOGRAPHIC COORDINATES |
|-----------|-----------------|------------------------|
|-----------|-----------------|------------------------|

NAME: HA XUAN MAI PETROLEUM PRODUCTS STORAGE

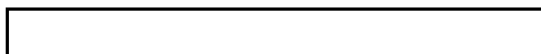
LOCATION: 0.4 NM SOUTH OF HA XUAN MAI.

DESCRIPTION: SITE CONTAINS 9 BUNKERED SMALL TANKS, 2 EMPTY EXCAVATIONS, AND 141 DRUMS IN SCATTERED TRENCHES.

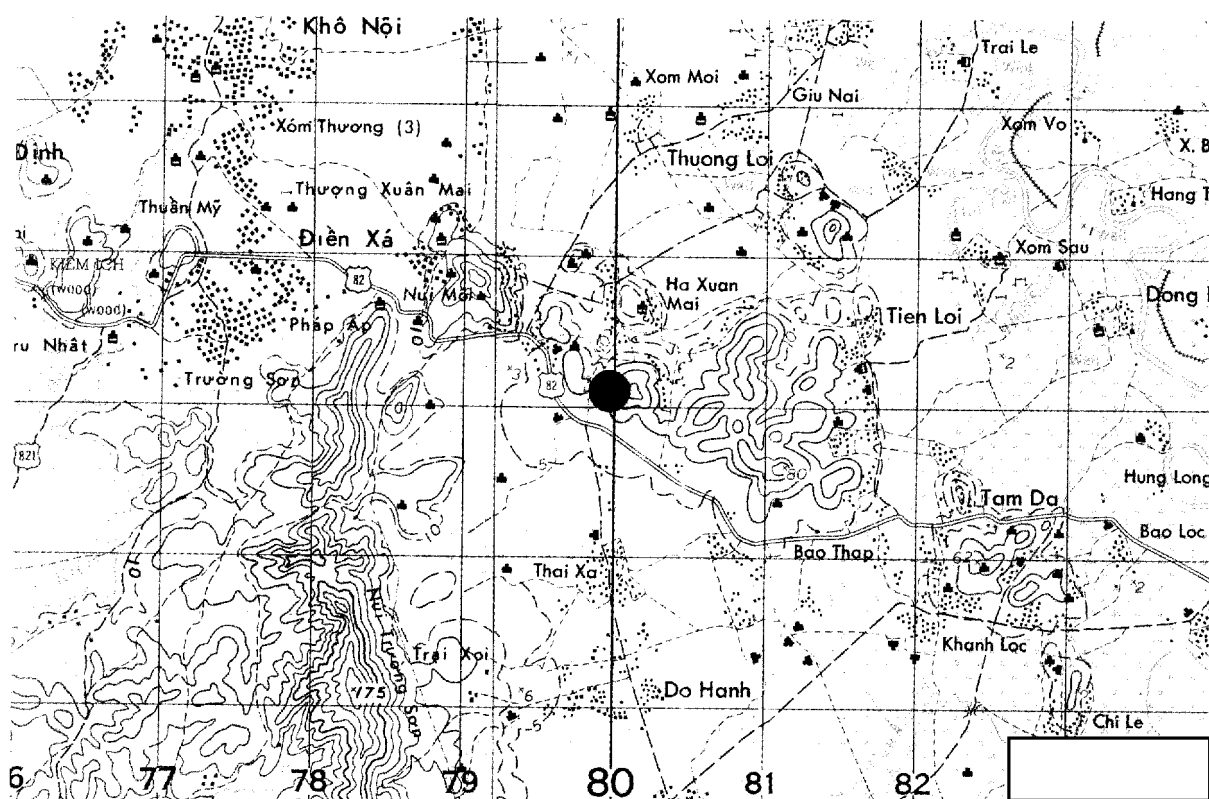
ESTIMATED CAPACITY: TANK 63 MT DRUM 31 MT

MAP REFERENCES: AMS SERIES L7014, SHEET 6145-I, 1ST ED, 1965 (U)  
AMS SERIES JOG(G) 1501, SHEET NE 48-7, 2D ED, JUN 65 (U)

PHOTO REFERENCE:



25X1D



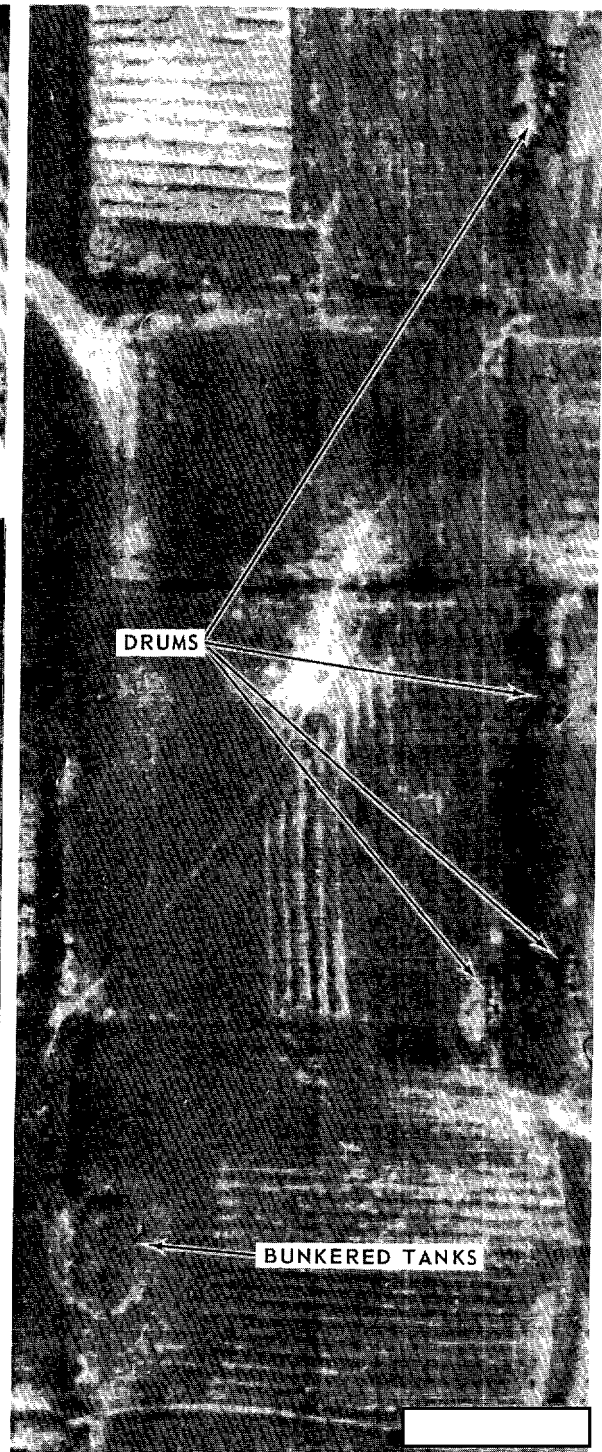
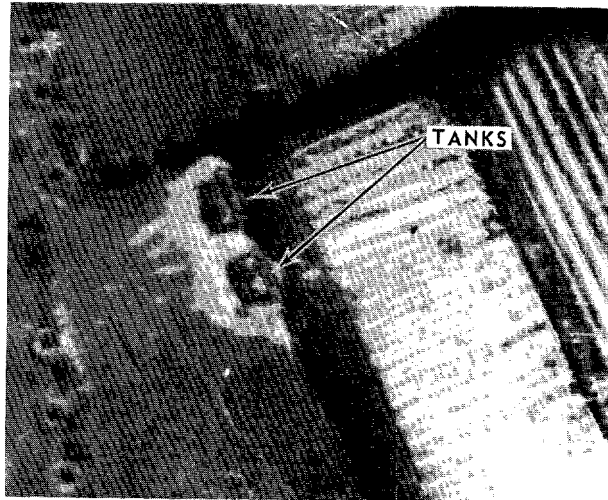
25X1



HA XUAN MAI PETROLEUM PRODUCTS STORAGE

WF800342  
UTM COORDINATES

182350N 1054530E  
GEOGRAPHIC COORDINATES



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25X1A

|  |                             |  |
|--|-----------------------------|--|
|  | WJ406103<br>UTM COORDINATES | 205340N 1052330E<br>GEOGRAPHIC COORDINATES |
|--|-----------------------------|--|

**NAME:** XOM LAM PETROLEUM PRODUCTS STORAGE

**LOCATION:** ON THE SOUTH SIDE OF ROUTE 6, 2.2 NM EAST OF THE BLACK RIVER,  
AND 1.1 NM SW OF XOM LAM.

**DESCRIPTION:** STORAGE AREA UNDER CONSTRUCTION CONTAINS 23 BUNKERED TANKS  
AND 12 EMPTY EXCAVATIONS AROUND LOOP ROADS.

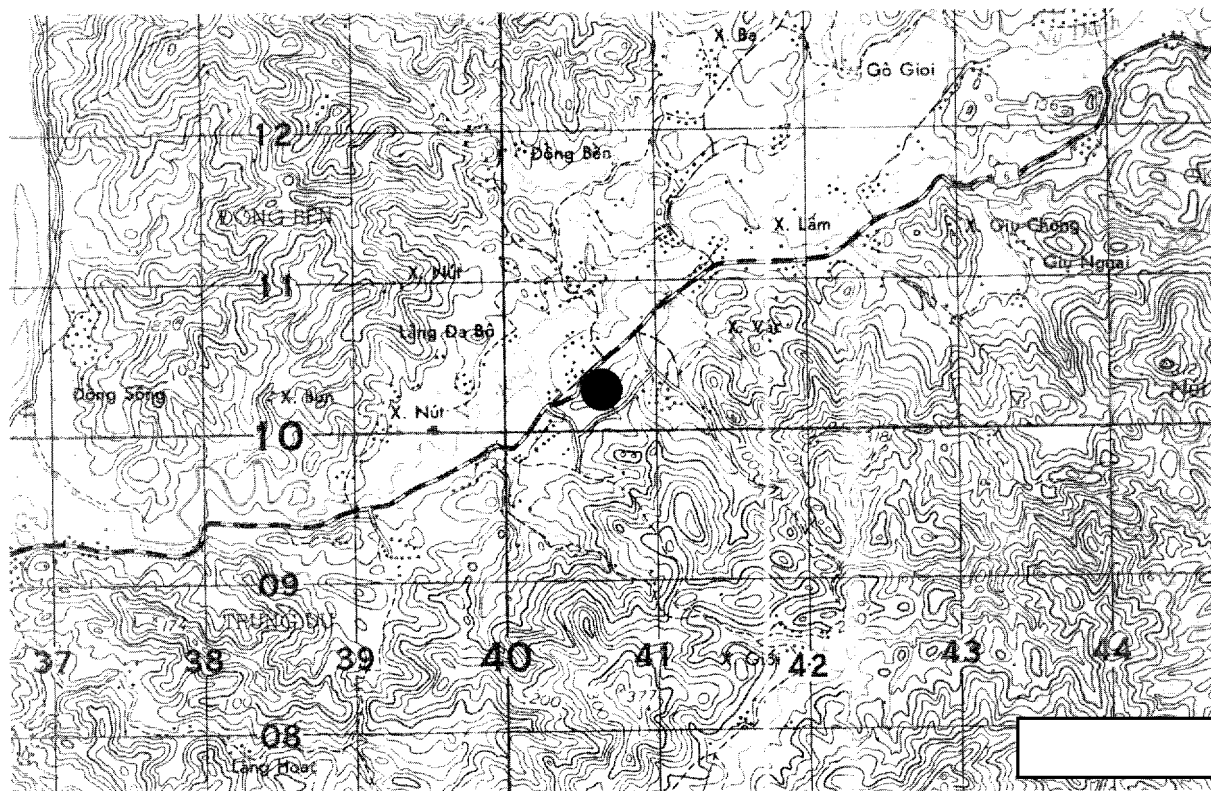
**ESTIMATED CAPACITY:** TANK 276 MT

**MAP REFERENCES:** AMS SERIES L7014, SHEET 6050-I, 1ST ED, 1965 (U)  
AMS SERIES JOG(G) 1501, SHEET NF 48-15, 1ST ED, JUN 65 (U)

**PHOTO REFERENCE:**



25X1D



25X1

25X1C

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14 JUNE 1968

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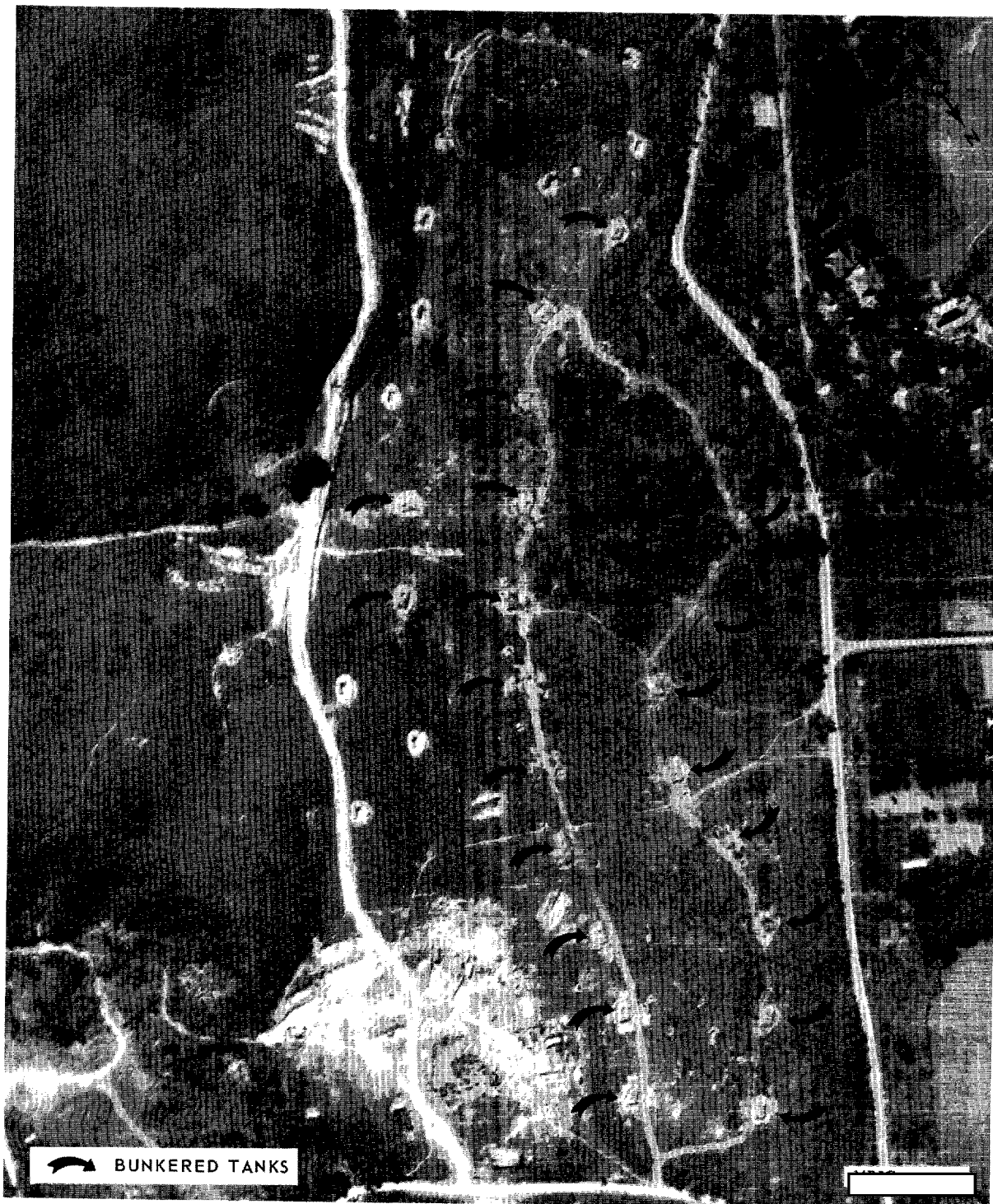
XOM LAM PETROLEUM PRODUCTS STORAGE

WJ406103

205340N 1052330E

UTM COORDINATES

GEOGRAPHIC COORDINATES



B250

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CONFIDENTIAL

25X1

25X1A

WJ927326  
UTM COORDINATES

210542N 1055332E  
GEOGRAPHIC COORDINATES

**NAME:** MAI HIEN PETROLEUM PRODUCTS STORAGE

**LOCATION:** 0.5 NM NNE OF MAI HIEN AND 5 NM NNE OF HA NOI.

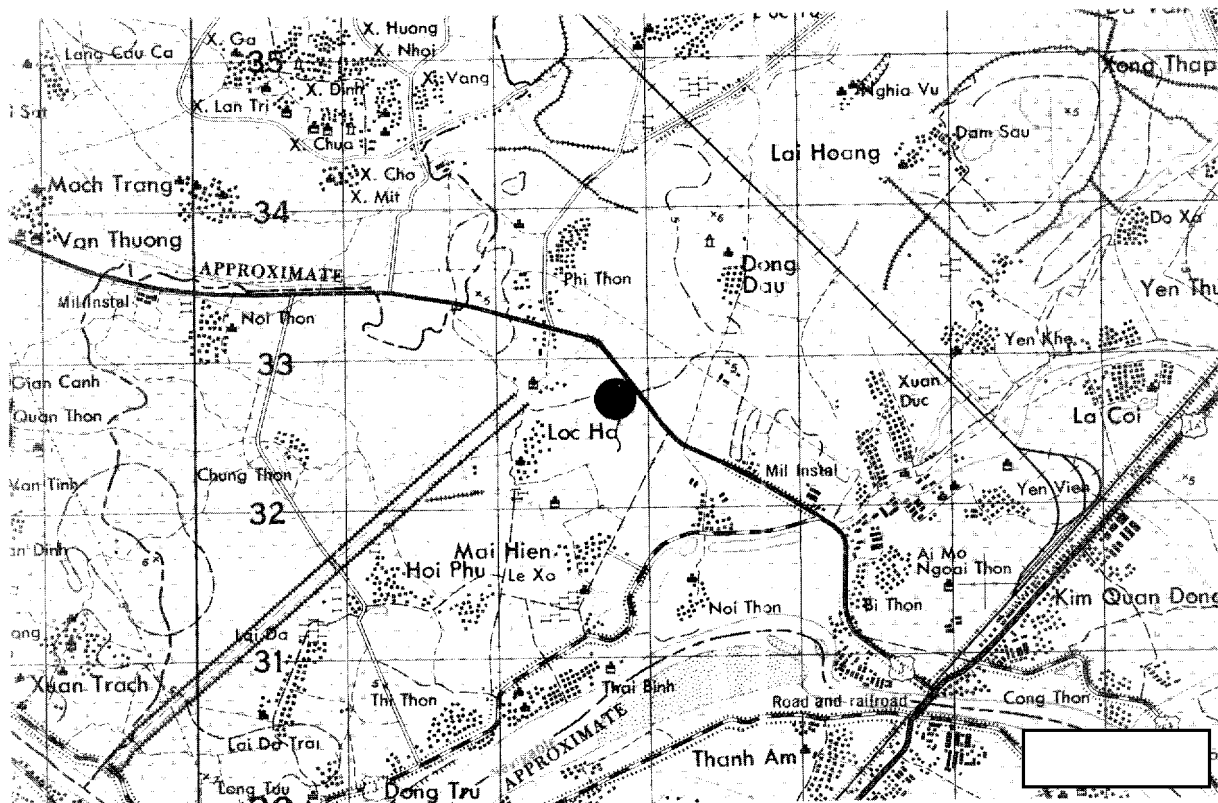
**DESCRIPTION:** STORAGE AREA CONTAINS A TOTAL OF 19 TANKS IN 6 BUNKERS,  
3 BUNKERS WITH 4 TANKS EACH, 2 BUNKERS WITH 2 TANKS EACH, AND 1 BUNKER  
WITH 3 TANKS.

**ESTIMATED CAPACITY:** TANK 228 MT

**MAP REFERENCES:** AMS SERIES L7014, SHEET 6151 II, 1ST ED, 1965 (U)  
AMS SERIES JOG(G) 1501, SHEET NF 48-11, 1ST ED, JUN 65 (U)

**PHOTO REFERENCE:**

25X1D



25X1

B251

25X1



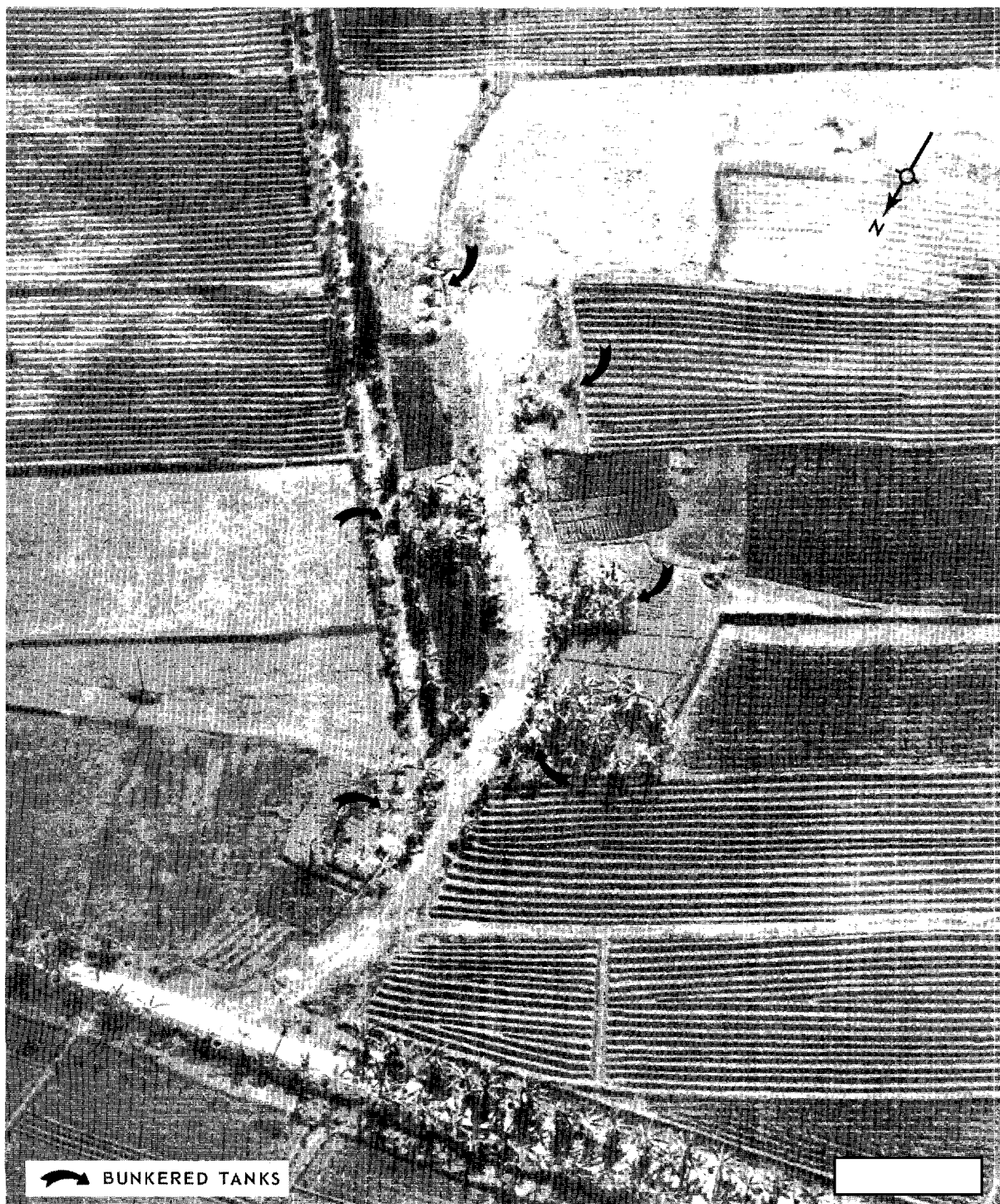
MAI HIEN PETROLEUM PRODUCTS STORAGE

WJ927326

210542N 1055332E

UTM COORDINATES

GEOGRAPHIC COORDINATES



BUNKERED TANKS

B252

BE NUMBER WJ882153 205615N 1055050E  
UTM COORDINATES GEOGRAPHIC COORDINATES

NAME: QUYNH DO PETROLEUM PRODUCTS STORAGE (AREA 2)

LOCATION: 0.5 NM EAST OF QUYNH DO AND IMMEDIATELY WEST OF ROUTE 1A.

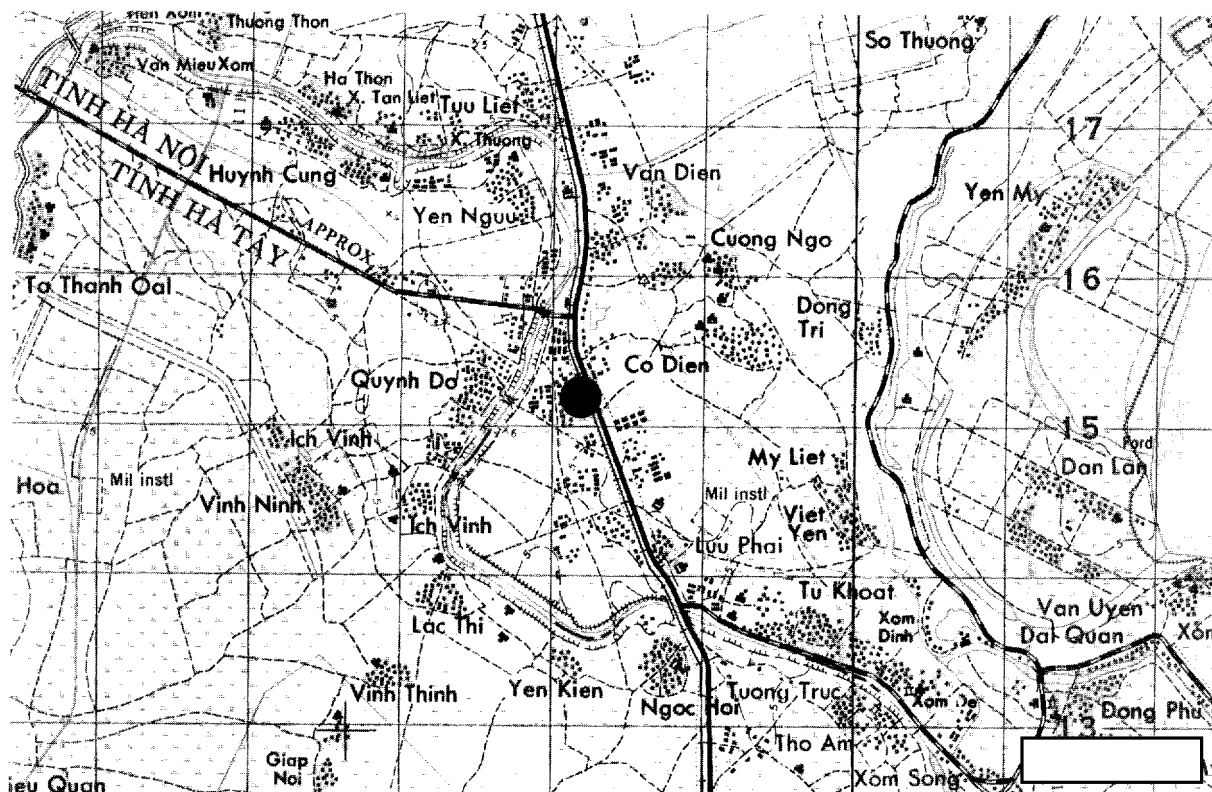
DESCRIPTION: AREA UNDER CONSTRUCTION CONTAINS 5 LARGE POL TANKS ABOVE  
GROUND ADJACENT TO 2 EMPTY EXCAVATIONS.

ESTIMATED CAPACITY: TANK 125 MT

MAP REFERENCES: AMS SERIES L7014, SHEET 6150-I, 1ST ED, 1965 (U)  
AMS SERIES JOG(G) 1501, SHEET NF 48-15, 1ST ED, JUN 65 (U)

PHOTO REFERENCE:

25X1D



B253

25X1

QUYNH DO PETROLEUM PRODUCTS STORAGE (AREA 2)

WJ882153  
UTM COORDINATES

205615N 1055050E  
GEOGRAPHIC COORDINATES



25X1

25X1

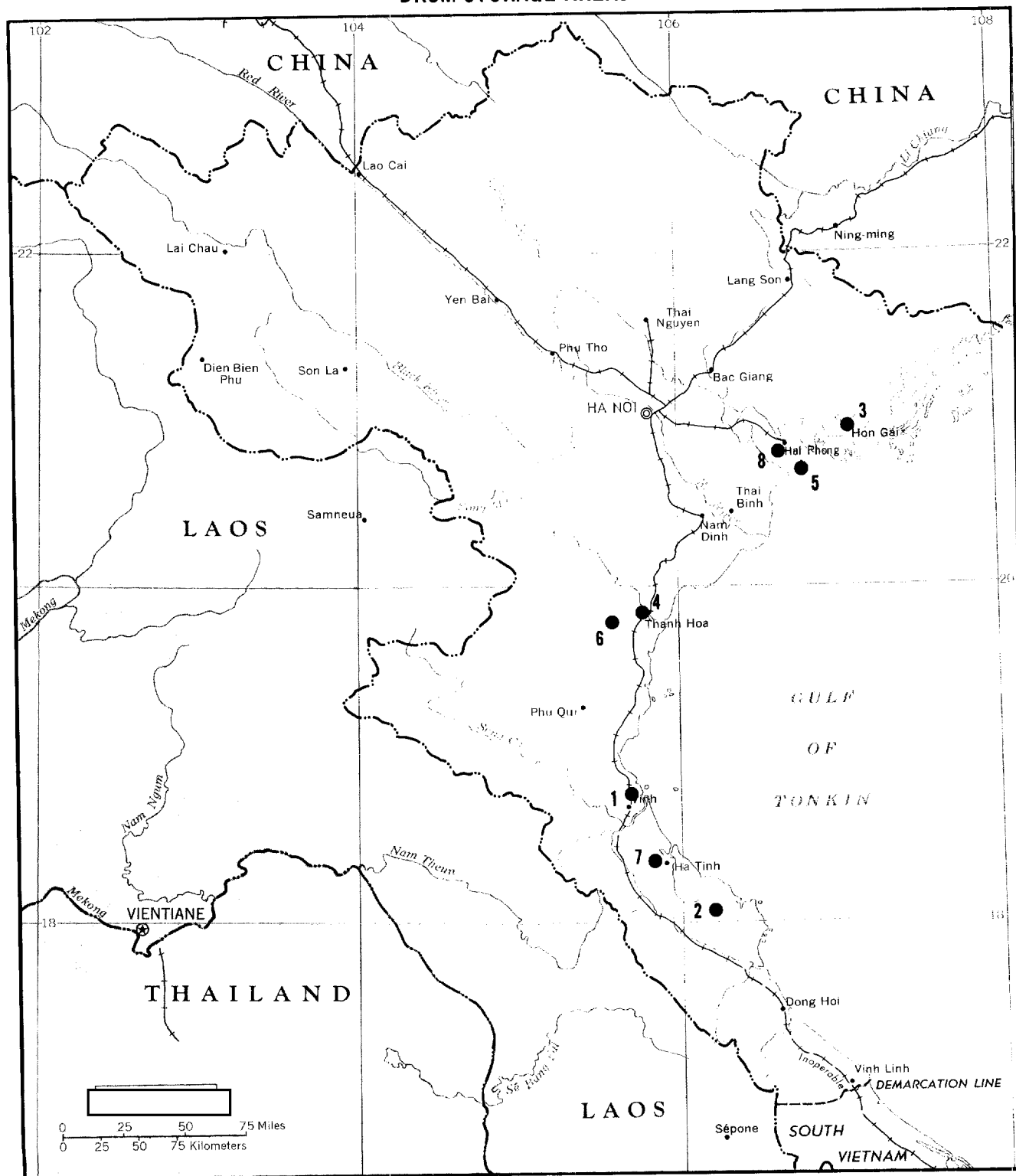
TABLE OF CONTENTS CATEGORY C  
DRUM STORAGE AREAS

| <u>Map Key</u> | <u>Installation Name</u>                   | <u>Effective Date</u> |
|----------------|--|-----------------------|
| 1              | Ky Tran POL Storage Area                   | C1, 2 (Original)      |
| 2              | Ky Anh POL Drum Storage                    | C3, 4 (Original) (C)  |
| 3              | Hon Gai POL Drum Storage                   | C5, 6 (Original) (C)  |
| 4              | Thanh Hoa Petroleum Products Storage North | C7, 8 (May 67) (C)    |
| 5              | Do Son POL Drum Storage                    | C9, 10 (Original) (C) |
| 6              | Tri Binh POL Drum Storage Area             | C11, 12 (Nov 66) (C)  |
| 7              | Dien Xa POL Storage                        | C13, 14 (Nov 66) (C)  |
| 8              | Cuu Vien POL Storage Area                  | C15, 16 (Nov 66)      |

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CATEGORY C  
DRUM STORAGE AREAS



C-III

CONFIDENTIAL

P-218/66

0617-  
BE NUMBER

WF705767  
UTM COORDINATES

1847N 10540E  
GEOGRAPHIC COORDINATES

**NAME:** KY TRAN POL STORAGE APEA

**LOCATION:** 0.2 NM SOUTH OF KY TRAN, 6.9 NM NORTH OF VINH, AND 1.2 NM EAST OF ROUTE 1A AND THE THANH HOA/VINH RAIL LINE

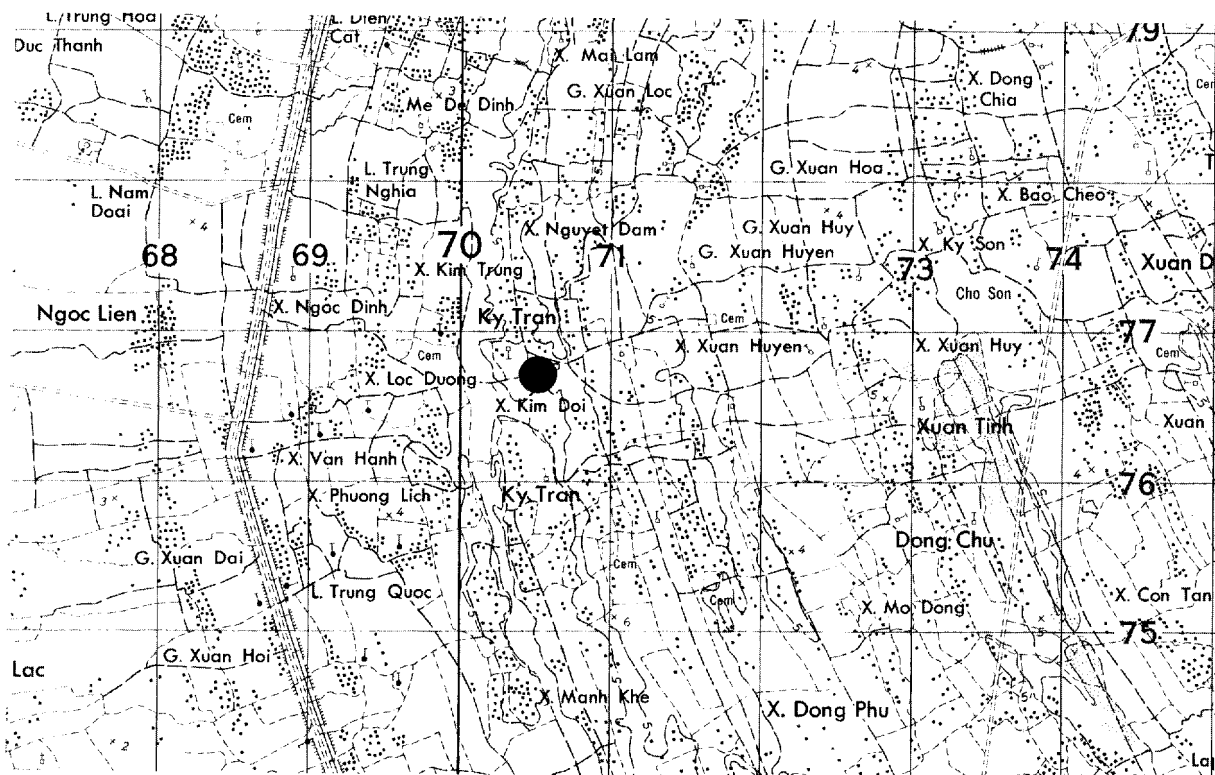
**DESCRIPTION:** STORAGE AREA CONSISTS OF AT LEAST 24 PARALLEL TRENCHES IN 3 LIGHTLY WOODED AREAS ALONG BOTH SIDES OF A SECONDARY ROAD JUST SOUTH OF KY TRAN. APPROXIMATELY 1,000 POL DRUMS ARE STORED IN THESE TRENCHES. THE PART OF THE AREA SHOWN IN INSET IS AT UTM WF708768.

**ESTIMATED CAPACITY:** DRUM 200 MT

**MAP REFERENCES:** AMS SERIES L701, SHEET 6167 III, 1ST ED, DEC 60 (U)  
AMS SERIES JOG(G), SHEET NE 48-7, 1ST ED, DEC 65 (U)

**PHOTO REFERENCE:**

25X1D



25X1C

C1

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NPIC/R-218/66-13

1968

TABLE OF CONTENTS CATEGORY D  
MISCELLANEOUS

| <u>Installation Name</u>                                  | <u>Effective Date</u>  |
|---|------------------------|
| Thuy Phuong POL Storage Tanks                             | D1, 2 (Original)       |
| Ha Noi Probable POL Tank Fabrication Area 1               | D3, 4 (Original)       |
| Ha Noi Probable POL Tank Fabrication Area 2               | D5, 6 (Original)       |
| Ninh Binh (POL Tanks in Sampan)                           | D7, 8 (Original)(C)    |
| Thanh Thuy POL Tanks                                      | D9, 10 (Original) (C)  |
| Lang Khe POL Storage Area Under Construction              | D11, 12 (Original) (C) |
| Nho Lam POL Drum Transshipment Area                       | D13, 14 (Original) (C) |
| Phuc Yen POL Truck Dispersal Area                         | D15, 16 (Original)     |
| Sac Le POL Tanks  | D17, 18 (Original) (C) |
| Co Trung POL Storage Site                                 | D19, 20 (Original)     |
| POL Barge   | D21, 22 (Original) (C) |
| Ha Dong POL Trucks  | D23, 24 (Original)     |
| POL Tanks (Van Dien Army Supply Depot)                    | D25, 26 (Sep 66)       |
| Soviet Tanker with Motorized POL Barges                   | D27, 28 (Sep 66) (C)   |
| POL Storage at Phu Tho Chemical Fertilizer Plant Lam Thao | D29, 30 (Sep 66) (C)   |
| Ben Thuy Thermal Powerplant (POL Storage Area)            | D31, 32 (Nov 66) (C)   |
| POL Trucks on Polish Ship (Hai Phong Area)                | D33, 34 (Nov 66) (C)   |
| POL Tanks in Ha Noi                                       | D35, 36 (Nov 66)       |
| Uong Bi Powerplant (Petroleum Products Storage)           | D37, 38 (Nov 66) (C)   |
| Cong My Transshipment Facility and POL Barges             | D39, 40 (Nov 66) (C)   |
| Thai Nguyen Thermal Powerplant (Petroleum Storage)        | D41, 42 (Nov 66) (C)   |
| Thon Nieu Tank Fabrication Area (Thai Nguyen Complex)     | D43, 44 (Nov 66) (C)   |
| POL Tanks Lang Can  | D45, 46 (Nov 66) (C)   |
| Ha Noi POL Tanks  | D47, 48 (Nov 66)       |
| POL Tanks at Hai Phong Thermal Powerplant                 | D49, 50 (Nov 66)       |
| POL Storage Tanks Hai Phong                               | D51, 52 (Nov 66) (C)   |
| POL Storage Tanks Xom Dong                                | D53, 54 (Dec 66)       |
| Giap Nhat POL Transshipment Area                          | D55, 56 (Mar 67) (C)   |
| Hai Phong Tank Fabrication Shop East                      | D57, 58 (May 67)       |
| Ha Dong Tank Fabrication Area                             | D59, 60 (Aug 67) (C)   |
| Tanker-POL Barge Offloading                               | D61, 62 (Nov 67)       |
| Camouflaged Railroad Tank Cars                            | D63, 64 (Jun 68) (C)   |
| POL Storage Tanks on Rail Cars                            | D65, 66 (Jun 68) (C)   |
| Co Dien POL Tanks   | D67, 68 (Jun 68)       |
| Ha Noi POL Tank Storage                                   | D69, 70 (Jun 68)       |

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R-218/66

0616-  
BE NUMBER

WJ809323  
UTM COORDINATES

2105N 10546E  
GEOGRAPHIC COORDINATES

**NAME:** THUY PHUONG POL STORAGE TANKS

**LOCATION:** NE SECTION OF THUY PHUONG AND 5.3 NM NW OF HA NOI

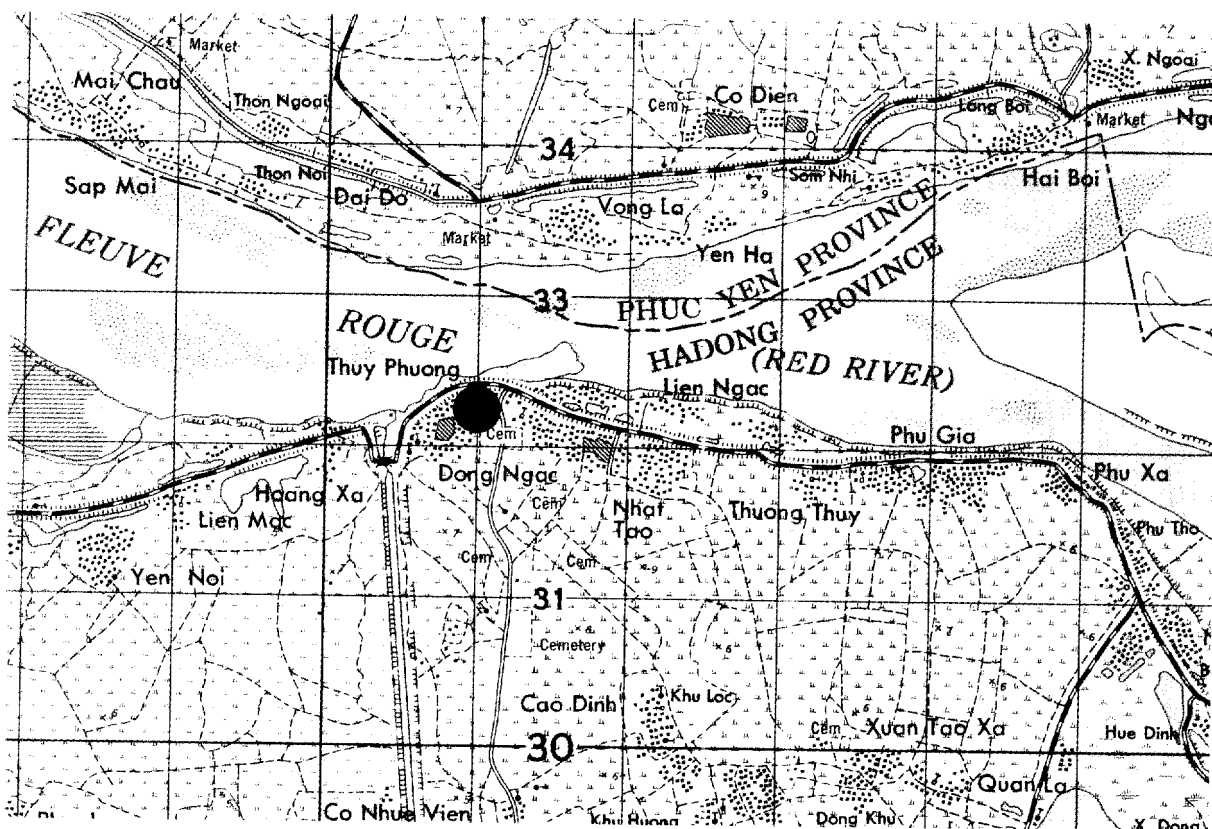
**DESCRIPTION:** SITE CONTAINS A TOTAL OF 65 (55 STANDARD AND 10 LARGE) TANKS IN RANDOM STORAGE. THIRTY-SIX UNASSEMBLED TANK SECTIONS ARE ALSO OBSERVED. NO PERMANENT POL STORAGE FACILITY IS APPARENT AT THIS SITE.

**ESTIMATED CAPACITY:** NOT APPLICABLE

**MAP REFERENCES:** AMS SERIES L701, SHEET 6174 II, 3D ED, APR 63 (U)  
AMS SERIES JOG(G) 1501, SHEET NF 48-11, 1ST ED, JUN 65 (U)

**PHOTO REFERENCE:**

25X1D



25X1C

D1

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CONFIDENTIAL

25X1

25X1

(INFORMATION ON THIS PAGE IS CONFIDENTIAL)

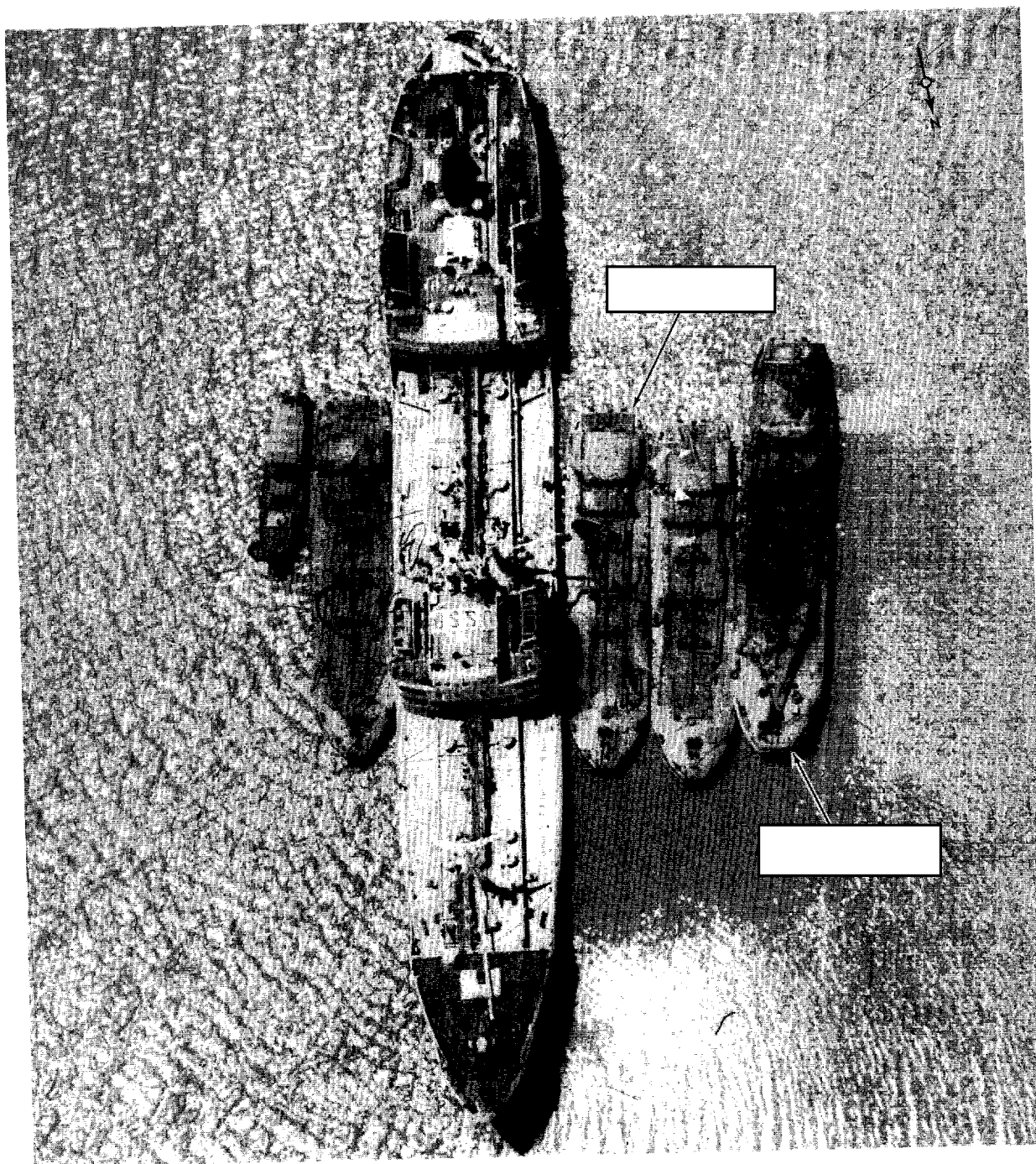
25X1

TANKER - POL BARGE OFFLOADING

25X1C

XJ838069  
UTM COORDINATES

205118N 1064600E  
GEOGRAPHIC COORDINATES



25X1

25X1

25X1

SECRET

NPIC/R-218/66-13  
14 JUNE 1968

(INFORMATION ON THIS PAGE IS CONFIDENTIAL)

BE NUMBER

X4016365  
UTM COORDINATES

201335N 1055822E  
GEOGRAPHIC COORDINATES

NAME: CAMOUFLAGED RAILROAD TANK CARS

LOCATION: ON THE HA NOI-VINH RAIL LINE, 1.5 NM SOUTH OF NINH BINH.

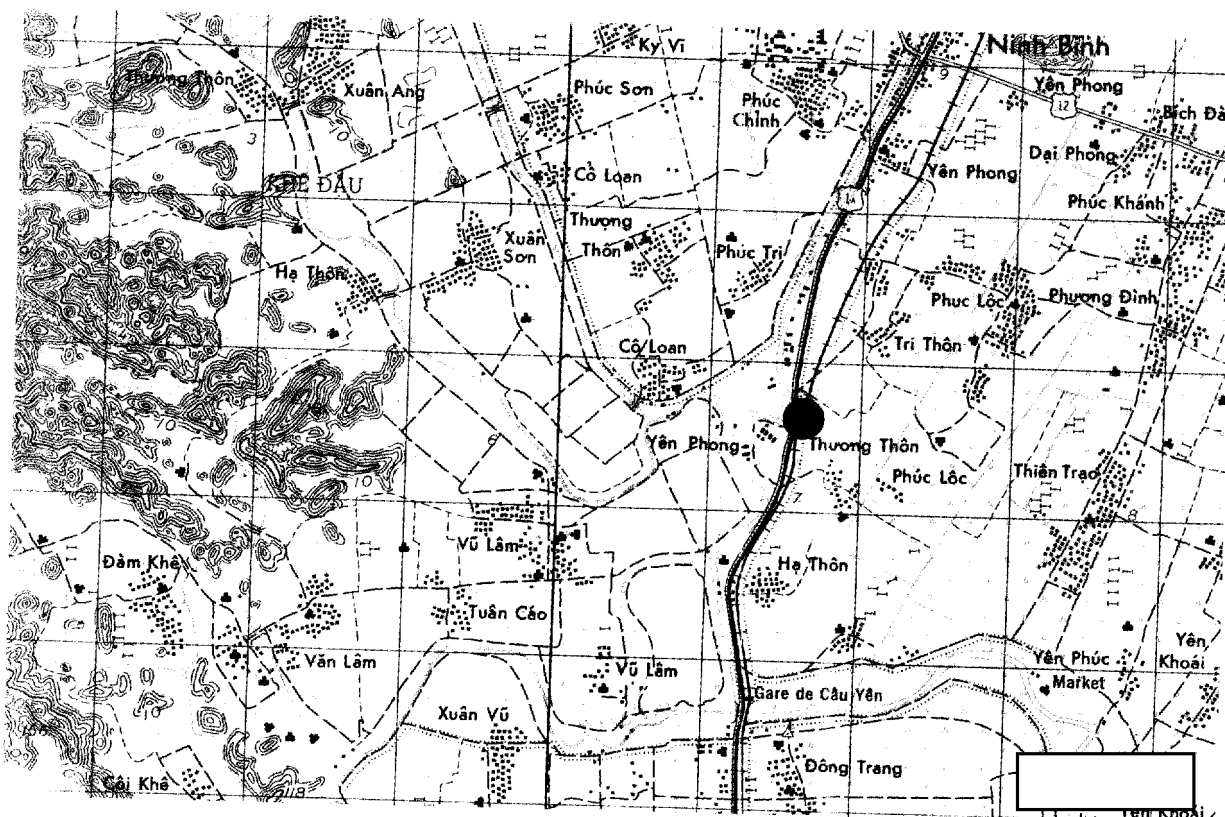
DESCRIPTION: A PORTION OF THE NORTH VIETNAMESE POL IMPORTS ARE DISTRIBUTED IN RAILROAD TANK CARS CAMOUFLAGED TO APPEAR TO BE BOXCARS, PROBABLY TO LESSEN AIRSTRIKE DANGER. FOUR SUCH CARS ARE SHOWN IN A SUPPLY TRAIN. NOTE CUPOLA ON THE TOP OF EACH CAR.

ESTIMATED CAPACITY: NOT APPLICABLE

MAP REFERENCES: AMS SERIES L7014, SHEET 6149-II, 1ST ED, 1965 (U)  
AMS SERIES JOG(G) 1501, SHEET NF 48-15, 1ST ED, JUN 65 (U)

PHOTO REFERENCE:

25X1D



25X1C

D63

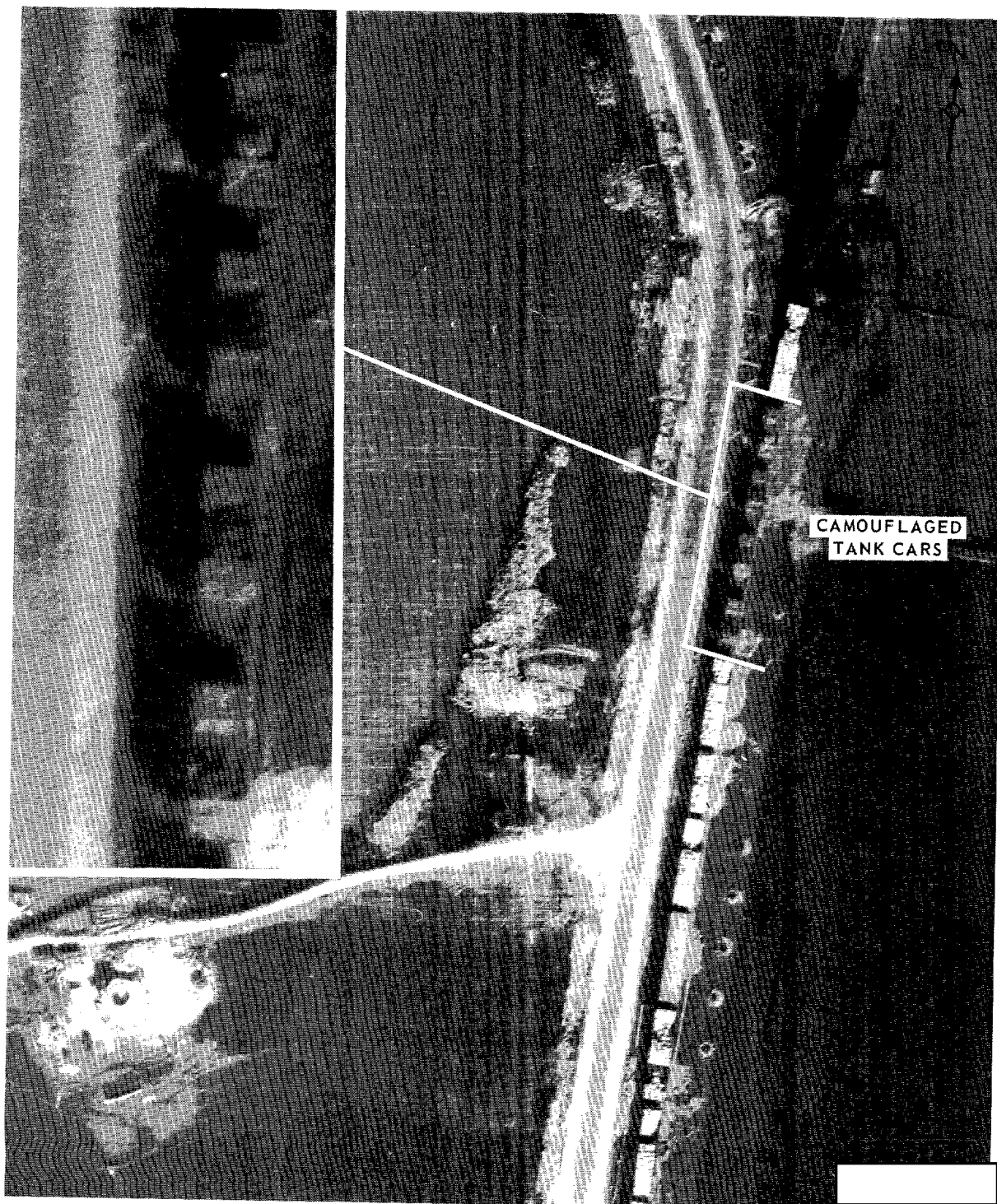
SECRET



CAMOUFLAGED RAILROAD TANK CARS

X-016365  
UTM COORDINATES

201335N 1055822E  
GEOGRAPHIC COORDINATES



25X1

| BE NUMBER | UTM COORDINATES | GEOGRAPHIC COORDINATES |
|-----------|-----------------|------------------------|
|           | WG828931        | 195003N 1054728E       |

**NAME:** POL STORAGE TANKS ON RAIL CARS

**LOCATION:** 1.8 NM NNE OF THANH HOA, ADJACENT TO THANH HOA THERMAL POWERPLANT.

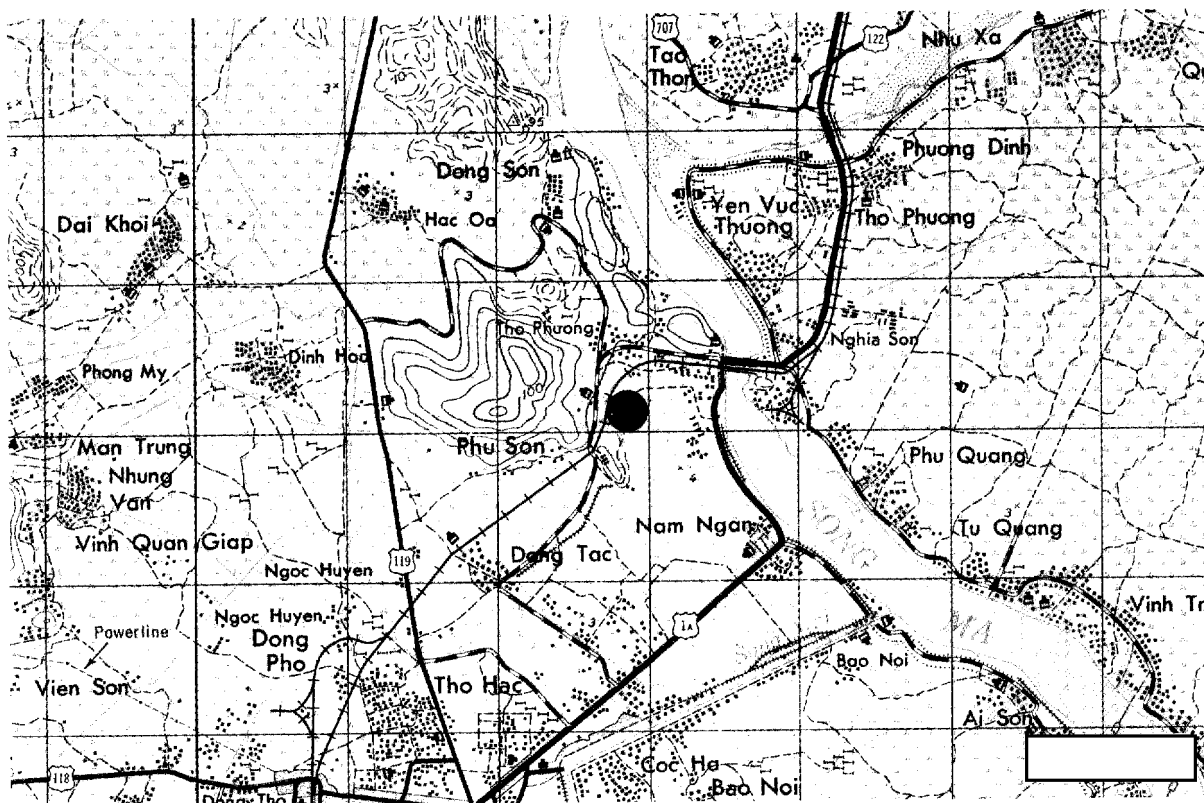
**DESCRIPTION:** TEN POL STORAGE TANKS ARE OBSERVED ON STATIONARY RAIL FLATCARS. THESE TANKS COULD BE USED FOR TRANSPORTING POL, BUT ARE PROBABLY BEING TRANSPORTED SOUTH FOR USE IN UNDERGROUND POL STORAGE SITES. EACH TANK HAS AN ESTIMATED CAPACITY OF 32 MT.

**ESTIMATED CAPACITY:** NOT APPLICABLE

**MAP REFERENCES:** AMS SERIES L7014, SHEET 6148-1, 1ST ED, 1965 (U)  
AMS SERIES JOG(G) 1501, SHEET NE 48-3, 1ST ED, JUN 65 (U)

**PHOTO REFERENCE:**

25X1D



25X1



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NPIC/R-218/66-13

(INFORMATION C)

POL STORAGE TANKS ON RAIL CARS

WG828931  
UTM COORDINATES

195003N 1054728E  
GEOGRAPHIC COORDINATES



25X1

D66

CONFIDENTIAL

NAME: CO DIEN POL TANKS

**LOCATION:** 0.5 NM SW OF CO DIEN, IMMEDIATELY EAST OF ROUTE 1A.

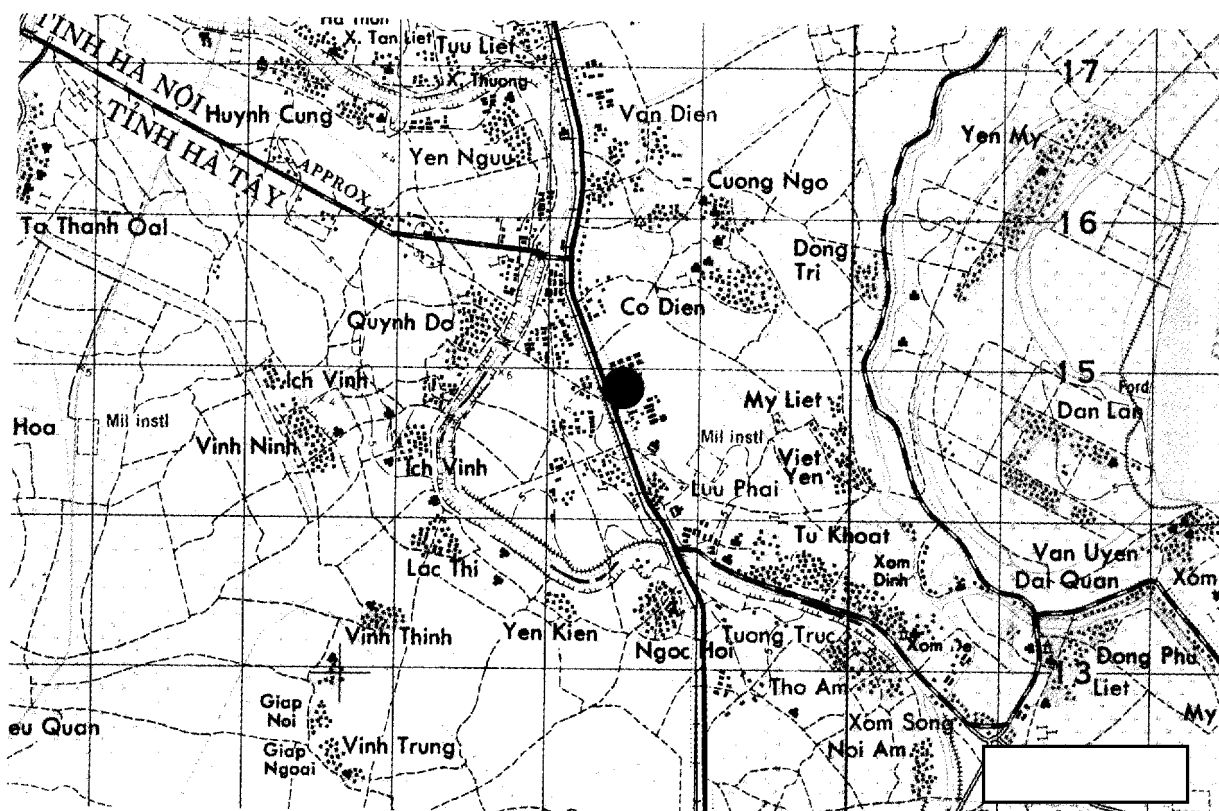
**DESCRIPTION:** TWENTY-FIVE SMALL STORAGE TANKS ARE OBSERVED SCATTERED THROUGH A DESTROYED VEHICLE MAINTENANCE/BARRACKS AREA.

**ESTIMATED CAPACITY:** NOT APPLICABLE

**MAP REFERENCES:** AMS SERIES L7014, SHEET 6150-I, 1ST ED, 1965 (U)  
AMS SERIES JOG(G) 1501, SHEET NF 48-15, 1ST ED, JUN 65 (U)

**PHOTO REFERENCE:**

25X1D



25X1

25X1C

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25X1

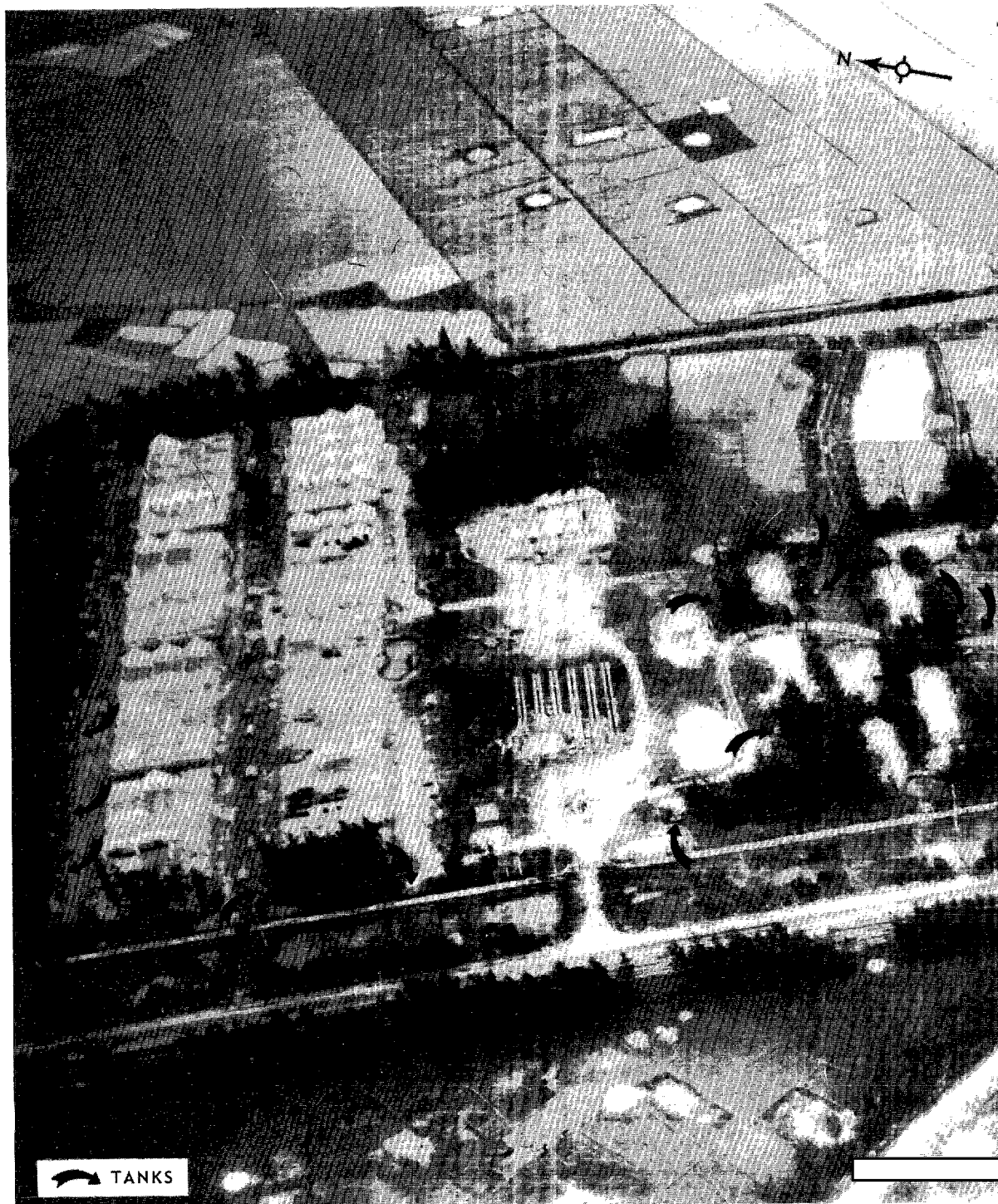
CO DIEN POL TANKS

WJ885148

205600N 1055103E

UTM COORDINATES

GEOGRAPHIC COORDINATES



25X1

D68

25X1C

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25X1

CONFIDENTIAL

NPIC/R-218/66-13  
14 JUNE 1968

WJ895254 210140N 1055140E  
BE NUMBER UTM COORDINATES GEOGRAPHIC COORDINATES

NAME: HA NOI POL TANK STORAGE

LOCATION: EAST CENTRAL SECTION OF HA NOI.

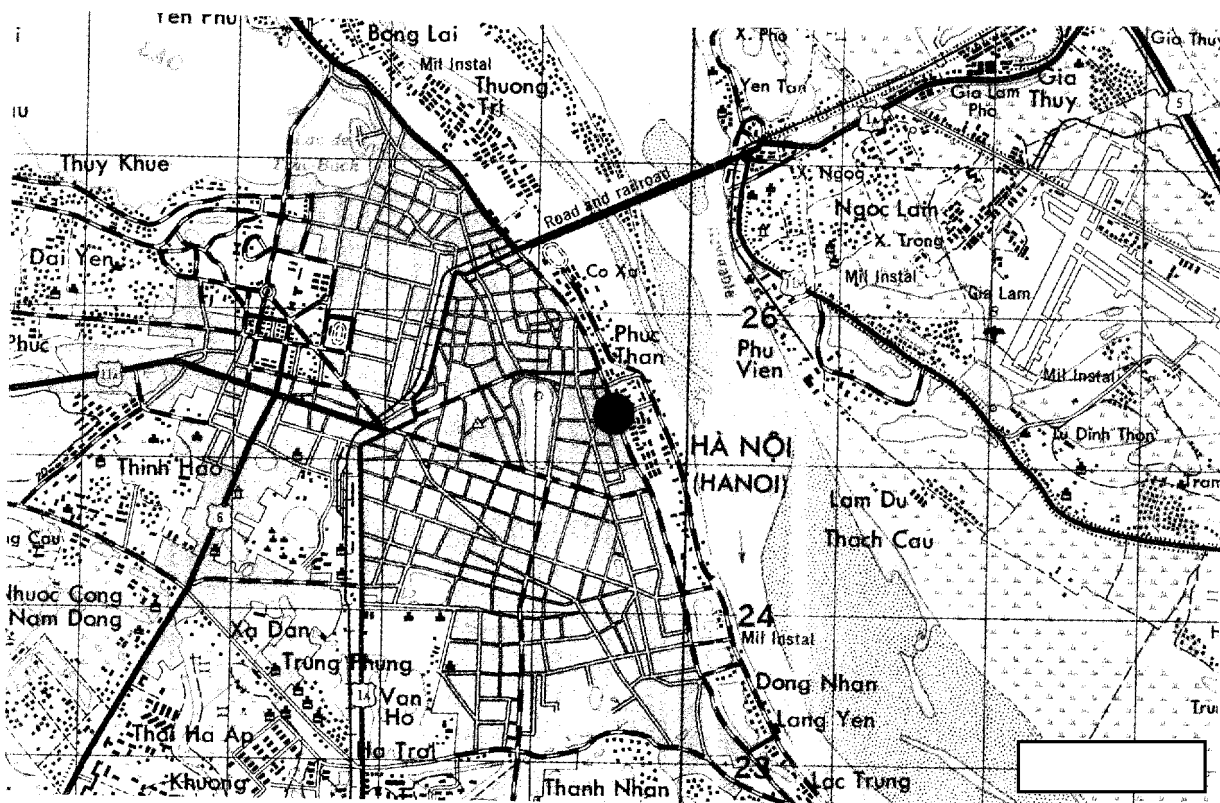
DESCRIPTION: AREA CONTAINS 57 STANDARD POL STORAGE TANKS AND 7 SMALL POL STORAGE TANKS ALONG STREET.

ESTIMATED CAPACITY: NOT APPLICABLE

MAP REFERENCES: AMS SERIES L7014, SHEET  
AMS SERIES JOG(G) 1501, SHEET

PHOTO REFERENCE:

25X1D



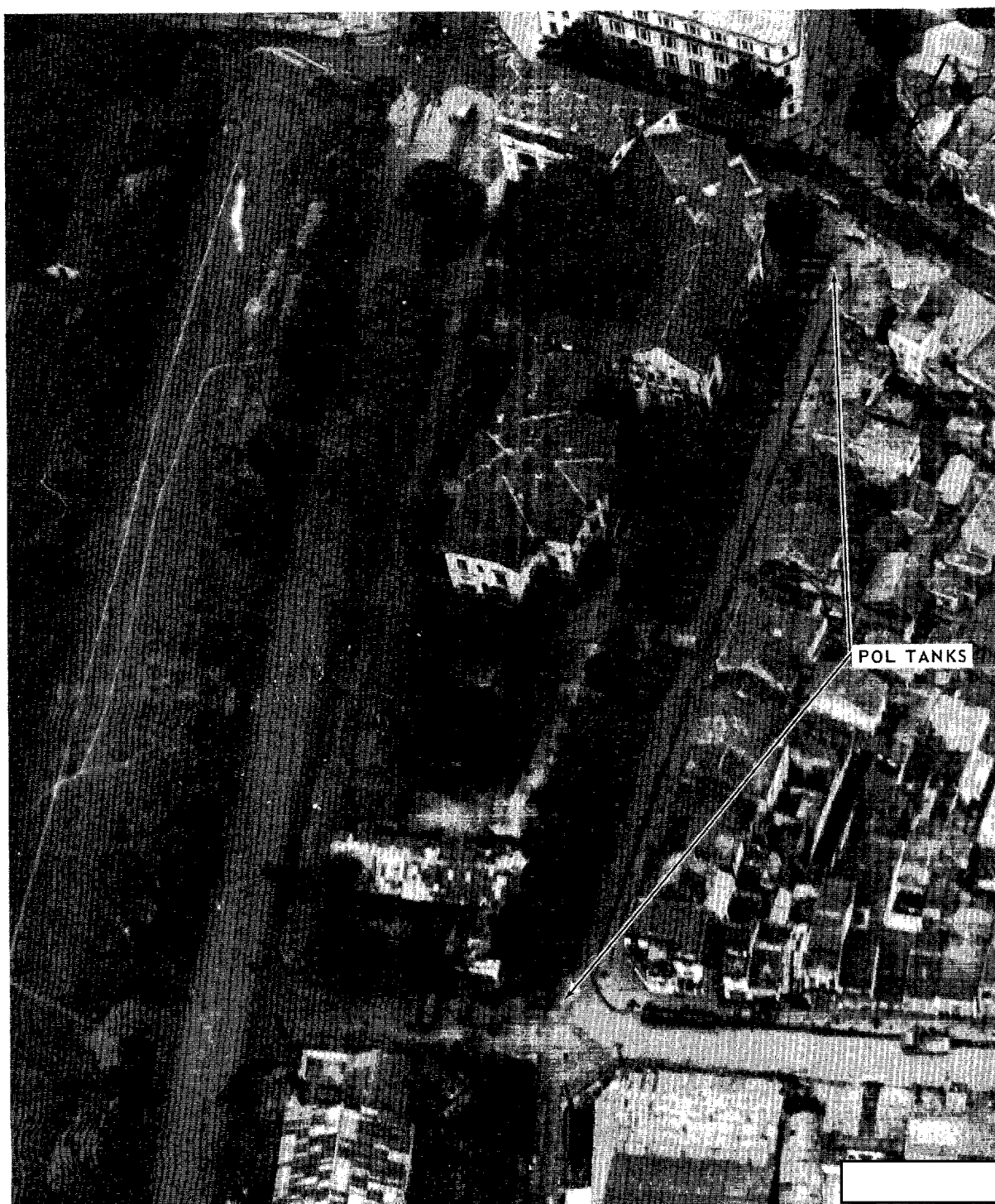
D69

CONFIDENTIAL

HA NOI POL TANK STORAGE

WJ895254  
UTM COORDINATES

210140N 1055140E  
GEOGRAPHIC COORDINATES



D70



SECRET

## INTRODUCTION

Annex I, prepared by the DIA Production Center, is divided into Sections XA and XB, corresponding to Categories A and B. These sections contain detailed target analyses of the POL storage and handling facilities. Included in the descriptions is information on the significance and capacities of the facilities, target and defense environments, probable impact upon North Vietnam if destroyed, length of time required for restoration, and results of air strikes.

SECRET

25X1

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XA-I

25X1



25X1A

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25X1C

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SECRET

25X1

25X1

SECRET

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25X1

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25X1C

XB-IV

25X1

25X1C  
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SECRET  
NPIC/R-216/66-13  
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HA NOI PETROLEUM PRODUCTS STORAGE UNDERGROUND THANH LIET (AREA 1)

WJ846182  
UTM COORDINATES

25X1A

205750N 1054850E  
GEOGRAPHIC COORDINATES

PRE-STRIKE TARGET DESCRIPTION

25X1A

THIS ROAD-SERVED AREA IS 1 OF 2 AREAS COLLOCATED AS A SINGLE TARGET COM-  
PLEX [REDACTED] IT LIES ABOUT 0.3 NM WNW OF THANH LIET AND 4 NM  
SSW OF HA NOI. PHOTOGRAPHY OF [REDACTED] REVEALED THE SITE TO CON-  
SIST OF 30 BURIED TANKS, 13 ABOVEGROUND TANKS, 2 EXCAVATIONS FOR TANKS,  
AND 1 POL TRUCK. PHOTOGRAPHY OF [REDACTED] REVEALS THAT THE SITE NOW  
CONTAINS 32 SMALL BURIED TANKS WITH AN ESTIMATED CAPACITY OF 224 MT.

25X1

25X1

THIS AREA IS PART OF THE DISPERSED STORAGE SYSTEM UTILIZED FOR STRATEGIC  
RESERVES AND/OR LOCAL CONSUMPTION.

SAM DEFENSES HAVE BEEN LOCATED WITHIN SA-2 MISSILE RANGE (17.5 NM) AND  
AAA SITES HAVE BEEN IDENTIFIED WITHIN 3 NM OF THIS TARGET.

RESTORATION OF THIS TARGET TO FULL, PRE-STRIKE CAPABILITY WOULD REQUIRE  
APPROXIMATELY 2 - 3 WEEKS WITH MATERIALS AT THE SITE. NORTH VIETNAM IS  
PRESENTLY FABRICATING SMALL HORIZONTAL TANKS, BUT MUST IMPORT THE VARIOUS  
COMPONENT PARTS. RELIANCE ON IMPORTED MATERIALS IS EXPECTED TO CONTINUE  
INDEFINITELY.

25X1C

PREPARED BY DEFENSE INTELLIGENCE AGENCY

X-B25

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SECRET

25X1

25X1C

SECRET

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25X1

[REDACTED] HA NOI PETROLEUM PRODUCTS STORAGE UNDERGROUND THANH LIET (AREA 2)

25X1A



205820N 1054840E  
GEOGRAPHIC COORDINATES

PRE-STRIKE TARGET DESCRIPTION

25X1

THIS ROAD-SERVED STORAGE AREA IS 1 OF 2 AREAS COLLOCATED AS A SINGLE TARGET COMPLEX [REDACTED] IT LIES ABOUT 0.7 NM NW OF THANH LIET AND 3.6 NM SSW OF HA NOI. PHOTOGRAPHY [REDACTED] REVEALED THE AREA TO CONSIST OF 2 BURIED POL TANKS, 8 ABOVEGROUND TANKS, AND 24 EXCAVATIONS FOR TANKS. PHOTOGRAPHY [REDACTED] REVEALS THAT THE SITE CONTAINS 104 SMALL STORAGE TANKS WITH AN ESTIMATED CAPACITY OF 728 MT.

25X1

25X1

THIS AREA IS PART OF THE DISPERSED STORAGE SYSTEM UTILIZED FOR STRATEGIC RESERVES AND/OR LOCAL CONSUMPTION.

SAM DEFENSES HAVE BEEN LOCATED WITHIN SA-2 MISSILE RANGE (17.5 NM) AND AAA SITES HAVE BEEN IDENTIFIED WITHIN 3 NM OF THIS TARGET.

RESTORATION OF THIS TARGET TO FULL, PRE-STRIKE CAPABILITY WOULD REQUIRE APPROXIMATELY 2 - 3 WEEKS WITH MATERIALS AT THE SITE. NORTH VIETNAM IS PRESENTLY FABRICATING SMALL HORIZONTAL TANKS, BUT MUST IMPORT THE VARIOUS COMPONENT PARTS. RELIANCE ON IMPORTED MATERIALS IS EXPECTED TO CONTINUE INDEFINITELY.

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X-B27

25X1C

SECRET

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25X1



25X1

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NYC/R-218/66-13  
14 JUNE 1968

[REDACTED]  
HOAN CHUNG PETROLEUM PRODUCTS STORAGE

25X1C

XK237134  
UTM COORDINATES

25X1A

[REDACTED]  
214920N 1061150E  
GEOGRAPHIC COORDINATES

PRE-STRIKE TARGET DESCRIPTION

THIS STORAGE SITE LIES 0.7 NM NNE OF HOAN CHUNG. IT CONTAINS 74 PUG TANKS WITH AN ESTIMATED CAPACITY OF 888 MT.

THIS AREA IS PART OF THE DISPERSED STORAGE SYSTEM UTILIZED FOR STRATEGIC RESERVES AND/OR LOCAL CONSUMPTION.

NO SAM SITES HAVE BEEN IDENTIFIED WITHIN SA-2 MISSILE RANGE (17.5 NM) OF THE TARGET NOR HAVE AAA DEFENSES BEEN LOCATED WITHIN 3 NM.

RESTORATION OF THIS TARGET TO FULL, PRE-STRIKE CAPABILITY WOULD REQUIRE APPROXIMATELY 2 - 3 WEEKS WITH MATERIALS AT THE SITE. NORTH VIETNAM IS PRESENTLY FABRICATING SMALL HORIZONTAL TANKS, BUT MUST IMPORT THE VARIOUS COMPONENT PARTS. RELIANCE ON IMPORTED MATERIALS IS EXPECTED TO CONTINUE INDEFINITELY.

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X-B243

25X1C

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25X1



THANH HOA PETROLEUM PRODUCTS STORAGE SOUTH NO. 1

25X1A

WG806907  
UTM COORDINATES

194843N 1054614E  
GEOGRAPHIC COORDINATES

PRE-STRIKE TARGET DESCRIPTION

THIS STORAGE SITE IS LOCATED IN THE NW SECTION OF THANH HOA. IT CONTAINS 17 SEPARATELY BUNKERED TANKS WITH AN ESTIMATED CAPACITY OF 204 MT.

THIS AREA IS PART OF THE DISPERSED STORAGE SYSTEM UTILIZED FOR STRATEGIC RESERVES AND/OR LOCAL CONSUMPTION.

SAM DEFENSES HAVE BEEN LOCATED WITHIN SA-2 MISSILE RANGE (17.5 NM) AND AAA SITES HAVE BEEN IDENTIFIED WITHIN 3 NM OF THE TARGET.

RESTORATION OF THIS TARGET TO FULL PRE-STRIKE CAPABILITY WOULD REQUIRE 1 - 2 WEEKS WITH MATERIALS AT THE SITE. NORTH VIETNAM IS PRESENTLY FABRICATING SMALL HORIZONTAL TANKS, BUT MUST IMPORT THE VARIOUS COMPONENT PARTS. RELIANCE ON IMPORTED MATERIALS IS EXPECTED TO CONTINUE INDEFINITELY.

PREPARED BY DEFENSE INTELLIGENCE AGENCY

X-B245

SECRET

14 JUNE 1968

HA XUAN MAI PETROLEUM PRODUCTS STORAGE

WF800342  
UTM COORDINATES

182350N 1054530E  
GEOGRAPHIC COORDINATES

PRE-STRIKE TARGET DESCRIPTION

THIS AREA LIES 0.4 NM SOUTH OF HA XUAN MAI AND CONTAINS 9 SMALL BUNKERED TANKS AND 141 POL DRUMS IN SCATTERED TRENCHES. IT HAS AN ESTIMATED CAPACITY OF 94 MT.

THIS AREA IS PART OF THE DISPERSED STORAGE SYSTEM UTILIZED FOR STRATEGIC RESERVES AND/OR LOCAL CONSUMPTION.

SAM DEFENSES HAVE BEEN LOCATED WITHIN SA-2 MISSILE RANGE (17.5 NM) AND AAA SITES HAVE BEEN IDENTIFIED WITHIN 3 NM OF THIS TARGET.

RESTORATION OF THIS TARGET TO FULL, PRE-STRIKE CAPABILITY WOULD REQUIRE 1 - 2 WEEKS WITH MATERIALS AT THE SITE. NORTH VIETNAM IS PRESENTLY FABRICATING SMALL HORIZONTAL TANKS, BUT MUST IMPORT THE VARIOUS COMPONENT PARTS. RELIANCE ON IMPORTED MATERIALS IS EXPECTED TO CONTINUE INDEFINITELY.

25X1C

PREPARED BY DEFENSE INTELLIGENCE AGENCY  
X-B247

SECRET

WJ406103  
UTM COORDINATES

25X1A

205340N 1052330E  
GEOGRAPHIC COORDINATES

PRE-STRIKE TARGET DESCRIPTION

THIS STORAGE SITE, NOW UNDER CONSTRUCTION, LIES SOUTH OF ROUTE 6 AND 1.1 NM SW OF XOM LAM. IT CONTAINS 23 BUNKERED TANKS WITH AN ESTIMATED CAPACITY OF 276 MT.

THIS AREA IS PART OF THE DISPERSED STORAGE SYSTEM UTILIZED FOR STRATEGIC RESERVES AND/OR LOCAL CONSUMPTION.

NO SAM SITES HAVE BEEN IDENTIFIED WITHIN SA-2 MISSILE RANGE (17.5 NM); HOWEVER, AAA DEFENSES HAVE BEEN IDENTIFIED WITHIN 3 NM OF THE TARGET.

RESTORATION OF THIS TARGET TO FULL, PRE-STRIKE CAPABILITY WOULD REQUIRE APPROXIMATELY 2 - 3 WEEKS WITH MATERIALS AT THE SITE. NORTH VIETNAM IS PRESENTLY FABRICATING SMALL HORIZONTAL TANKS, BUT MUST IMPORT THE VARIOUS COMPONENT PARTS. RELIANCE ON IMPORTED MATERIALS IS EXPECTED TO CONTINUE INDEFINITELY.

PREPARED BY DEFENSE INTELLIGENCE AGENCY  
X-B249

MAI HIEN PETROLEUM PRODUCTS STORAGE

25X1A

WJ927326  
UTM COORDINATES

210542N 1055332E  
GEOGRAPHIC COORDINATES

PRE-STRIKE TARGET DESCRIPTION

THIS STORAGE SITE IS LOCATED 0.5 NM NNE OF MAI HIEN AND 5 NM NNE OF HA NOI. IT CONTAINS 19 BUNKERED TANKS WITH AN ESTIMATED CAPACITY OF 228 MT.

THIS AREA IS PART OF THE DISPERSED STORAGE SYSTEM UTILIZED FOR STRATEGIC RESERVES AND/OR LOCAL CONSUMPTION.

SAM DEFENSES HAVE BEEN LOCATED WITHIN SA-2 MISSILE RANGE (17.5 NM) AND AAA SITES HAVE BEEN IDENTIFIED WITHIN 3 NM OF THIS TARGET.

RESTORATION OF THIS TARGET TO FULL, PRE-STRIKE CAPABILITY WOULD REQUIRE 1 - 2 WEEKS WITH MATERIALS AT THE SITE. NORTH VIETNAM IS PRESENTLY FABRICATING SMALL HORIZONTAL TANKS, BUT MUST IMPORT THE VARIOUS COMPONENT PARTS. RELIANCE ON IMPORTED MATERIALS IS EXPECTED TO CONTINUE INDEFINITELY.

PREPARED BY DEFENSE INTELLIGENCE AGENCY  
X-B251

25X1

25X1C  
Approved For Release 2003/08/04 : CIA-RDP78B04560A005500010039-6  
**SECRET**  
NPIC/R-218/66-13  
14 JUNE 1968  
QUYNH DO PETROLEUM PRODUCTS STORAGE (AREA 2)

WJ882153  
**UTM COORDINATES**

205615N 1055050E  
**GEOGRAPHIC COORDINATES**

PRE-STRIKE TARGET DESCRIPTION

THIS STORAGE SITE, NOW UNDER CONSTRUCTION, LIES 0.5 NM EAST OF QUYNH DO. IT PRESENTLY CONSISTS OF 5 LARGE ABOVEGROUND STORAGE TANKS ADJACENT TO 2 EMPTY EXCAVATIONS. THE SITE HAS AN ESTIMATED CAPACITY OF 125 MT.

THIS AREA IS PART OF THE DISPERSED STORAGE SYSTEM UTILIZED FOR STRATEGIC RESERVES AND/OR LOCAL CONSUMPTION.

SAM DEFENSES HAVE BEEN LOCATED WITHIN SA-2 MISSILE RANGE (17.5 NM) AND AAA SITES HAVE BEEN IDENTIFIED WITHIN 3 NM OF THIS TARGET.

RESTORATION OF THIS TARGET TO FULL, PRE-STRIKE CAPABILITY WOULD REQUIRE 1 - 2 WEEKS WITH MATERIALS AT THE SITE. NORTH VIETNAM IS PRESENTLY FABRICATING SMALL HORIZONTAL TANKS, BUT MUST IMPORT THE VARIOUS COMPONENT PARTS. RELIANCE ON IMPORTED MATERIALS IS EXPECTED TO CONTINUE INDEFINITELY.

25X1C

PREPARED BY DEFENSE INTELLIGENCE AGENCY  
X-B253

Approved For Release 2003/08/04 : CIA-RDP78B04560A005500010039-6  
**SECRET**

25X1

### INTRODUCTION

In accordance with standard practices of the petroleum industry, capacities in all categories of this annex are expressed in terms of metric tons at the rate of one metric ton for each cubic meter of volume. A cubic meter of water (about 265 US gallons) weighs one metric ton. A cubic meter of petroleum generally weighs less than one metric ton, the exact weight depending upon the specific gravity of the particular type of petroleum. A specific gravity of 0.84 may be used to estimate the weight of a cubic meter of average petroleum; thus, one cubic meter of average petroleum would weigh 0.84 metric tons. Capacities shown in this annex are gross. Because of "deadwood" inside tanks, (e.g., the space occupied by pipes, manholes, and internal structural supports, and space left to preclude spillage at or near the tops of tanks), the actual and safe capacity may be about 95 percent of gross capacity.

ANNEX II

25X1A

RE No

Installation Name

Capacity

MT Water MT POL

|  |        |        |
|--|--------|--------|
| Viet Tri Petroleum Products Storage                      | 25     | 21     |
| Phuc Yen Airfield POL Storage Area                       | 4,200  | 3,530  |
| Hia Gia Petroleum Products Storage SSW UG                | 9,188  | 7,718  |
| Ha Noi Petroleum Products Storage Thanh Am               | 600    | 504    |
| Nguyen Khe Petroleum Products Storage                    | 5,925  | 4,977  |
| Bac Giang Petroleum Products Storage                     | 1,900  | 1,596  |
| Nam Dinh Petroleum Products Storage                      | 13,120 | 11,021 |
| Hai Phong Petroleum Products Storage                     | 48,348 | 40,612 |
| Duong Nham Petroleum Products Storage                    | --     | --     |
| Do Son Petroleum Products Storage                        | --     | --     |
| Phu Van POL Storage                                      | --     | --     |
| Vinh Petroleum Products Storage                          | 1,600  | 1,344  |
| Phu Qui Petroleum Products Storage                       | 9,000  | 7,560  |
| Ha Noi/Gia Lam Airfield POL Storage Area                 | 850    | 714    |
| La Danh Petroleum Products Storage PUG                   | 2,359  | 1,982  |
| Van Lung Petroleum Products Storage UG                   | 352    | 295    |
| Van Lung Petroleum Products Storage West UG              | 84     | 71     |
| Hoang Mai POL Storage Area                               | 300    | 252    |
| Ha Noi Petroleum Products Thi Cam                        | 468    | 393    |
| Bai Thuong Petroleum Products Storage UG Southeast       | 555    | 466    |
| Son La Petroleum Products Storage                        | 384    | 323    |
| Thuong Thon Petroleum Products Storage UG                | --     | --     |
| Ngoc Son Petroleum Products Storage PUG                  | 348    | 292    |
| Thai Lai Petroleum Products Storage                      | 120    | 151    |
| Yen Hau Petroleum Products Storage PUG                   | 192    | 161    |
| Thanh Lang Petroleum Products Storage PUG                | 1,044  | 877    |
| Ha Noi Petroleum Products Storage UG Thanh Liet (Area 1) | 224    | 188    |
| Ha Noi Petroleum Products Storage UG Thanh Liet (Area 2) | 728    | 612    |
| Bang So Petroleum Products Storage PUG                   | 234    | 197    |
| Son Chau Petroleum Products Storage PUG                  | --     | --     |
| Can Thon Petroleum Products Storage                      | 925    | 777    |
| Ha Noi Petroleum Products Storage Duc Noi (Area 1)       | 1,108  | 931    |
| Ha Noi Petroleum Products Storage Duc Noi (Area 2)       | 849    | 713    |
| Ha Noi Petroleum Products Storage Duc Noi (Area 3)       | 300    | 252    |
| Ha Noi Petroleum Products Storage Duc Noi (Area 4)       | 132    | 111    |

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25X1C



ANNEX II (Continued)

25X1A

|  | Installation Name                                 | Capacity |        |
|--|---|----------|--------|
|  |   | MT Water | MT POL |
|  | Cu Van Petroleum Products Storage                 | 850      | 714    |
|  | Cu Van Petroleum Products Storage East UG         | 1,300    | 1,092  |
|  | Dao Quan Petroleum Products Storage East          | 84       | 71     |
|  | Dao Quan Petroleum Products Storage West          | 162      | 136    |
|  | Nam Dinh Petroleum Products Storage PUG           | 300      | 252    |
|  | Thai Nguyen Petroleum Products Storage PUG South  | 1,320    | 1,109  |
|  | Phuc Yen Airfield POL Storage Area 1              | 300      | 252    |
|  | Phuc Yen Airfield POL Storage Area 2              | 750      | 630    |
|  | Xom Duong Quan Petroleum Products Storage UG East | 72       | 60     |
|  | Xom Duong Quan Petroleum Products Storage UG      | 43       | 36     |
|  | Nui Tap Tinh POL Storage Area                     | 26.6     | 22.3   |
|  | Sac Le POL Storage Area                           | 168      | 141    |
|  | Phu Dong POL Storage Area                         | 420      | 352    |
|  | Thuan Le POL Storage Area                         | 273      | 229    |
|  | Phuc Loc Petroleum Products Storage               | 156      | 131    |
|  | Thanh Hoa POL Storage Area                        | 118      | 99     |
|  | Ba Don Petroleum Products Storage                 | 84       | 71     |
|  | Phuc Loi Petroleum Products Storage Navy          | 300      | 252    |
|  | Tho Trang Petroleum Products Storage              | 250      | 210    |
|  | Ninh Giang Petroleum Products Storage             | 342      | 272    |
|  | Dong Chau Petroleum Products Storage              | 612      | 514    |
|  | Kep Ha Petroleum Products Storage                 | 96       | 81     |
|  | Tien Hoi Petroleum Products Storage               | 468      | 393    |
|  | Dong Mai Petroleum Products Storage               | 276      | 232    |
|  | Xom Lang POL Storage                              | 312      | 262    |
|  | Van Hoa POL Storage                               | 144      | 121    |
|  | Phu Lo Petroleum Products Storage NNE UG          | --       | --     |
|  | Juane Island POL Storage                          | 48       | 40     |
|  | Co Nhue Vien Petroleum Products Storage           | 744      | 625    |
|  | Quang Suoi Petroleum Products Storage             | --       | --     |
|  | Trung Phu Petroleum Products Storage              | 184      | 155    |
|  | Gia Hoa Petroleum Products Storage PUG            | 132      | 111    |
|  | Bai Chay Petroleum Products Storage               | 53       | 45     |
|  | Vinh Petroleum Products Storage Yen Thinh         | 132      | 111    |
|  | Ba Don Petroleum Products Storage PUG West        | 72       | 61     |
|  | Bac Ninh Petroleum Products Storage               | 204      | 169    |
|  | Vinh Petroleum Products Storage PUG Xuan Yen      | 70       | 59     |

25X1A

ANNEX II (Continued)

|  | <u>Installation Name</u>                           | <u>Capacity</u> |               |
|--|--|-----------------|---------------|
|  |  | <u>MT Water</u> | <u>MT POL</u> |
|  | Tri Binh Petroleum Products Storage                | 48              | 40            |
|  | Xuyen Duong Petroleum Products Storage             | --              | --            |
|  | Cau Cong Petroleum Products Storage                | 384             | 323           |
|  | Tung Tu Petroleum Products Storage UG              | 375             | 315           |
|  | Don Son Petroleum Products Storage                 | 744             | 625           |
|  | Quy Khe Petroleum Products Storage                 | 1,344           | 1,129         |
|  | Tran Xa Petroleum Products Storage                 | 1,250           | 1,050         |
|  | Than Hoa Petroleum Products Storage                | 84              | 71            |
|  | Tram Du Petroleum Products Storage                 | 1,050           | 882           |
|  | Luc Nong Petroleum Products Storage                | 720             | 605           |
|  | Thai Nguyen Petroleum Products Storage             | 99              | 83            |
|  | Tien Nong Petroleum Products Storage               | 432             | 363           |
|  | Vinh Petroleum Products Storage PUG Ben Thuy       | 168             | 141           |
|  | Chi Linh Petroleum Products Storage                | 1,728           | 1,452         |
|  | Vinh Petroleum Products Storage PUG Yen Dai        | 72              | 60            |
|  | Hoang Pha Petroleum Products Storage               | 240             | 202           |
|  | Kien An POL Storage                                | 288             | 242           |
|  | Phu Thi Petroleum Products Storage                 | 360             | 302           |
|  | Phu Tri Petroleum Products Storage West            | 164             | 138           |
|  | Vinh Petroleum Products Storage North UG           | 96              | 81            |
|  | Mach Trang Petroleum Products Storage              | 112             | 94            |
|  | Tram Bac Petroleum Products Storage                | 1,275           | 1,071         |
|  | Nam Lo Petroleum Products Storage                  | 1,000           | 840           |
|  | Hà Nội Petroleum Products Storage Duc Noi (Area 5) | 261             | 219           |
|  | Hai Gia Petroleum Products Storage NW              | 936             | 786           |
|  | Phu Xa Petroleum Products Storage                  | 200             | 168           |
|  | Hoa Loan Petroleum Products Storage                | 108             | 91            |
|  | Tu Hoang Petroleum Products Storage                | 175             | 148           |
|  | Tay Tuu Petroleum Products Storage East            | 325             | 273           |
|  | Nguyen Khe Petroleum Products Storage              | 36              | 30            |
|  | Cap Dien Petroleum Products Storage                | 216             | 181           |
|  | Vinh Petroleum Products Storage PUG North No 2     | 375             | 315           |
|  | Xom Thap Petroleum Products Storage                | 180             | 151           |
|  | Vinh Petroleum Products Storage PUG North No 3     | 54              | 45            |
|  | Cu Hap Petroleum Products Storage                  | 100             | 84            |
|  | Xuan Mai Petroleum Products Storage                | 750             | 630           |
|  | Dong Xuan Petroleum Products Storage               | 504             | 423           |
|  | Vinh Petroleum Products Storage SE PUG             | 147             | 124           |

25X1C

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ANNEX II (Continued)

25X1A

| <u>BE No.</u> | <u>Installation Name</u>                        | <u>Capacity</u> |               |
|---------------|---|-----------------|---------------|
|               |   | <u>MT Water</u> | <u>MT POL</u> |
|               | Kep Petroleum Products Storage                  | 500             | 420           |
|               | Dong Sang Petroleum Products Storage            | 120             | 109           |
|               | Lap Tri Petroleum Products Storage              | 975             | 819           |
|               | Long Dai Petroleum Products Storage             | 225             | 189           |
|               | Luc Nong Petroleum Products Storage             | 720             | 605           |
|               | Quynh Hoang Petroleum Products Storage          | 350             | 294           |
|               | Lang Son Petroleum Products Storage SE          | 300             | 252           |
|               | Xa Son Petroleum Products Storage               | 800             | 672           |
|               | Cam Lam Thuong Petroleum Products Storage       | 400             | 336           |
|               | Phu Qui Petroleum Products Storage PUG No 2     | 35              | 29            |
|               | Khon Phai Dan Petroleum Products Storage        | 325             | 273           |
|               | Na Pia Petroleum Products Storage NW            | 200             | 168           |
|               | Dong Dang Petroleum Products Storage No 2       | 1,450           | 1,218         |
|               | Dong Dang Petroleum Products Storage No 1       | 264             | 222           |
|               | Na Pia Petroleum Products Storage               | 1,050           | 882           |
|               | Lang Coc Petroleum Products Storage             | 375             | 315           |
|               | Binh Phu Petroleum Products Storage North       | 132             | 111           |
|               | Kieu Yen Thuong Petroleum Products Storage      | 180             | 151           |
|               | Hien Luong Petroleum Products Storage           | 120             | 101           |
|               | Hoan Ha Petroleum Products Storage              | 1,250           | 1,050         |
|               | Ban Yen Nhan Petroleum Products Storage         | 447             | 375           |
|               | Quynh Do Petroleum Products Storage             | 394             | 331           |
|               | Tien Huong Petroleum Products Storage           | 156             | 131           |
|               | Bau Me Petroleum Products Storage               | 250             | 210           |
|               | Duong Xa Petroleum Products Storage             | 542             | 455           |
|               | Hoan Chung Petroleum Products Storage           | 888             | 746           |
|               | Thanh Hoa Petroleum Products Storage South No 1 | 204             | 171           |
|               | Ha Xuan Mai Petroleum Products Storage          | 94              | 79            |
|               | Xom Lam Petroleum Products Storage              | 276             | 232           |
|               | Mai Hien Petroleum Products Storage             | 228             | 192           |
|               | Quynh Do Petroleum Products Storage (Area 2)    | 125             | 105           |

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25X1C

25X1

BAI THUONG PETROLEUM PRODUCTS STORAGE UG SE  
QUANG SUOI PETROLEUM PRODUCTS STORAGE  
CAMOUFLAGED RAILROAD TANK CARS  
LANG COC PETROLEUM PRODUCTS STORAGE  
THUONG THON PETROLEUM PRODUCTS STORAGE UG  
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XOM LAM PETROLEUM PRODUCTS STORAGE  
BANG SO PETROLEUM PRODUCTS STORAGE PUG  
BINH PHU PETROLEUM PRODUCTS STORAGE NORTH  
XUAN MAI PETROLEUM PRODUCTS STORAGE  
QUYNH DO PETROLEUM PRODUCTS STORAGE  
QUYNH DO PETROLEUM PRODUCTS STORAGE (AREA 2)  
CO DIEN POL TANKS  
HA NOI POL PROD STOR UG THANH LIET (AREA 1)  
HA LONG POL TRUCKS  
POL TANKS (VAN DIEN ARMY SUPPLY DEPOT)  
HA NOI POL PROD STOR UG THANH LIET (AREA 2)  
HA LONG TANK FABRICATION AREA  
POL TANKS IN HA NOI  
CO TRUNG POL STORAGE SITE  
NAM DINH PETROLEUM PRODUCTS STORAGE  
NAM DINH PETROLEUM PRODUCTS STORAGE PUG  
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CAU CONG PETROLEUM PRODUCTS STORAGE  
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DU SON PETROLEUM PRODUCTS STORAGE  
DU SON POL DRUM STORAGE  
NINH GIANG PETROLEUM PRODUCTS STORAGE  
KIEN AN PETROLEUM PRODUCTS STORAGE  
TIEN HOI PETROLEUM PRODUCTS STORAGE  
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2055 N 10637 E B19, X-B19  
205650N 1060108E B233, X-B233  
2058 N 10617 E B133, X-B133  
2058 N 10636 E B23, X-B23

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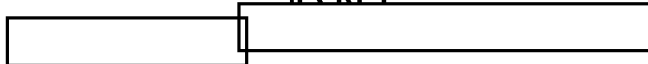
CAM LAM THUONG PETROLEUM PRODUCTS STORAGE  
SOVIET TANKER WITH MOTORIZED POL BARGES  
HON GAI POL DRUM STORAGE  
BAI CHAY PETROLEUM PRODUCTS STORAGE  
SAC LE POL STORAGE AREA  
SAC LE POL TANKS  
SON LA PETROLEUM PRODUCTS STORAGE  
HA NOI PETROLEUM PRODUCTS THI CAM  
HA NOI PROBABLE POL TANK FABRICATION AREA 1  
HA NOI PROBABLE POL TANK FABRICATION AREA 2  
HA NOI POL TANKS  
HA NOI POL TANK STORAGE  
PHU THI PETROLEUM PRODUCTS STORAGE  
DUONG XA PETROLEUM PRODUCTS STORAGE  
CO NHUE VIEN PETROLEUM PRODUCTS STORAGE  
HANOI/GIA LAM AIRFIELD POL STORAGE AREA  
TAY TOU PETROLEUM PRODUCTS STORAGE EAST  
TU HOANG PETROLEUM PRODUCTS STORAGE  
HA NOI PETROLEUM PRODUCTS STORAGE THANH AM  
PHU DUNG POL STORAGE AREA  
THUY PHUONG POL STORAGE TANKS  
MAI HIEN PETROLEUM PRODUCTS STORAGE  
MACH TRANG PETROLEUM PRODUCTS STORAGE  
HA NOI PETROLEUM PROD STOR DUC NOI (AREA 4)  
HA NOI PETROLEUM PROD STOR DUC NOI (AREA 1)  
HA NOI PETROLEUM PROD STOR DUC NOI (AREA 2)  
HA NOI PETROLEUM PROD STOR DUC NOI (AREA 3)  
DONG SANG PETROLEUM PRODUCTS STORAGE  
POL STORAGE TANKS XOM DONG  
HA NOI PETROLEUM PROD STOR DUC NOI (AREA 5)  
NGUYEN KHE PETROLEUM PRODUCTS STORAGE  
NGUYEN KHE PETROLEUM PRODUCTS STORAGE  
PHU TRI PETROLEUM PRODUCTS STORAGE WEST  
PHUC YEN AIRFIELD POL STORAGE AREA  
HIEN LUONG PETROLEUM PRODUCTS STORAGE  
PHUC YEN AIRFIELD POL STORAGE A2  
PHUC YEN POL TRUCK DISPERSAL AREA  
NINH BINH (POL TANKS IN SAMPHAN)  
HOA LOAN PETROLEUM PRODUCTS STORAGE  
TIEN HUONG PETROLEUM PRODUCTS STORAGE  
PHUC YEN AIRFIELD POL STORAGE AREA 1  
HA GIA PETROLEUM PRODUCTS STORAGE SSW UG  
VIET TRI PETROLEUM PRODUCTS STORAGE  
LAP TRI PETROLEUM PRODUCTS STORAGE  
POL STOR PHU THO CHEM FERT PLT LAM THAO  
VAN LUNG PETROLEUM PROD STORAGE WEST UG  
VAN LUNG PETROLEUM PRODUCTS STORAGE UG  
HA GIA PETROLEUM PRODUCTS STORAGE NW  
PHU LU PETROLEUM PRODUCTS STORAGE NNE UG  
LANG KHE POL STOR AREA UNDER CONSTRUCTION

245920N 1062726E B209, X-B209  
2051 N 10707 E D27  
2056 N 10705 E C5  
2057 N 10703 E B107, X-B107  
2057 N 10706 E B65, X-B65  
2058 N 10709 E D17  
2117 N 10356 E B13, X-B13  
2101 N 10545 E B9, X-B9  
2101 N 10549 E D3  
2101 N 10549 E D5  
2101 N 10550 E D47  
210140N 1055140E D69  
2101 N 10558 E B151, X-B151  
210128N 1055904E B241, X-B241  
210250N 1054625E B99, X-B99  
2102 N 10553 E A27, X-A27  
2103 N 10544 E B173, X-B173  
2103 N 10544 E B171, X-B171  
2103 N 10553 E A7, X-A7  
2103 N 10556 E B67, X-B67  
2105 N 10546 E D1  
210542N 1055332E B251, X-B251  
2106 N 10551 E B157, X-B157  
2107 N 10551 E B41, X-B41  
2107 N 10552 E B35, X-B35  
2107 N 10552 E B37, X-B37  
2107 N 10552 E B39, X-B39  
210820N 1052625E B195, X-B195  
2108 N 10549 E D53  
2108 N 10551 E B163, X-B163  
2110 N 10551 E A9, X-A9  
2110 N 10551 E B175, X-B175  
211252N 1054225E B153, X-B153  
2114 N 10548 E A3, X-A3  
211500N 1054640E B229, X-B229  
2115 N 10549 E B57, X-B57  
2115 N 10550 E D15  
2115 N 10559 E D7  
2116 N 10529 E B169, X-B169  
211655N 1053912E B237, X-B237  
2116 N 10549 E B55, X-B55  
2116 N 10550 E A5, X-A5  
2117 N 10526 E A1, X-A1  
211716N 1054609E B197, X-B197  
2119 N 10517 E D29  
2120 N 10521 E B5, X-B5  
2120 N 10522 E B3, X-B3  
2120 N 10550 E B165, X-B165  
212455N 1051834E B95, X-B95  
2127 N 10549 E D11

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III

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|  |         |          |                |
|--|---------|----------|----------------|
| THAI NGUYEN PETROLEUM PROD STOR PUG SOUTH    | 2129    | N 10551  | E B53, X-B53   |
| TUNG TU PETROLEUM PRODUCTS STORAGE UG        | 2129    | N 10552  | E B123, X-B123 |
| THON NIEU TANK FAB AREA (THAI NGUYEN)        | 2132    | N 10552  | E D43          |
| THAI NGUYEN PETROLEUM PRODUCTS STORAGE       | 2136    | N 10548  | E B137, X-B137 |
| THAI NGUYEN THERMAL POWERPLANT (POL STORAGE) | 2136    | N 10549  | E D41          |
| CU VAN PETROLEUM PRODUCTS STORAGE            | 2137    | N 10543  | E B43, X-B43   |
| CU VAN PETROLEUM PRODUCTS STORAGE EAST UG    | 2138    | N 10544  | E B45, X-B45   |
| LA DANH PETROLEUM PRODUCTS STORAGE PUG       | 2139    | N 10550  | E B1, X-B1     |
| XA SON PETROLEUM PRODUCTS STORAGE            | 21458N  | 1062503E | B207, X-B207   |
| QUY KHE PETROLEUM PRODUCTS STORAGE           | 2140    | N 10638  | E B127, X-B127 |
| DUONG NHAM PETROLEUM PRODUCTS STORAGE        | 2141    | N 10630  | E A17, X-A17   |
| DON SON PETROLEUM PRODUCTS STORAGE           | 2142    | N 10636  | E B125, X-B125 |
| UONG BI POWERPLANT (PETROLEUM PROD STOR)     | 2142    | N 10647  | E D37          |
| CAP DIEN PETROLEUM PRODUCTS STORAGE          | 2143    | N 10618  | E B177, X-B177 |
| TRAN XA PETROLEUM PRODUCTS STORAGE           | 2143    | N 10619  | E B129, X-B129 |
| NUI TAP TINH POL STORAGE AREA                | 2143    | N 10648  | E B63, X-B63   |
| CHI LINH PETROLEUM PRODUCTS STORAGE          | 2144    | N 10619  | E B143, X-B143 |
| DONG MAI PETROLEUM PRODUCTS STORAGE          | 2144    | N 10629  | E B89, X-B89   |
| BAC NINH PETROLEUM PRODUCTS STORAGE          | 2149    | N 10604  | E B113, X-B113 |
| HOANG MAI POL STORAGE AREA                   | 2114    | N 10606  | E B7, X-B7     |
| BAC GIANG PETROLEUM PRODUCTS STORAGE         | 2116    | N 10611  | E A11, X-A11   |
| TRUNG PHU PETROLEUM PRODUCTS STORAGE         | 2122    | N 10619  | E B103, X-B103 |
| CAN THON PETROLEUM PRODUCTS STORAGE          | 212335N | 1061839E | B33, X-B33     |
| KEP HA PETROLEUM PRODUCTS STORAGE            | 2123    | N 10639  | E B85, X-B85   |
| KEP PETROLEUM PRODUCTS STORAGE               | 212415N | 1061730E | B193, X-B193   |
| DAO QUAN PETROLEUM PRODUCTS STORAGE WEST     | 212530N | 1061155E | B49, X-B49     |
| DAO QUAN PETROLEUM PRODUCTS STORAGE EAST     | 212610N | 1061222E | B47, X-B47     |
| HOAN HA PETROLEUM PRODUCTS STORAGE           | 214620N | 1060818E | B231, X-B231   |
| LANG SON PETROLEUM PRODUCTS STORAGE SE       | 214800N | 1065222E | B205, X-B205   |
| HOAN CHUNG PETROLEUM PRODUCTS STORAGE        | 214920N | 1061150E | B243, X-B243   |
| POL BARGE                                    | 2151    | N 10644  | E D21          |
| NA PIA PETROLEUM PRODUCTS STORAGE NW         | 215350N | 1062555E | B215, X-B215   |
| NA PIA PETROLEUM PRODUCTS STORAGE            | 215352N | 1062614E | B221, X-B221   |
| DONG DANG PETROLEUM PRODUCTS STORAGE NO 2    | 215440N | 1064015E | B217, X-B217   |
| DONG DANG PETROLEUM PRODUCTS STORAGE NO 1    | 215443N | 1064116E | B219, X-B219   |
| KHON PHAI DAN PETROLEUM PRODUCTS STORAGE     | 215625N | 1062330E | B213, X-B213   |
| JAUNE ISLAND POL STORAGE                     | 2102    | N 10722  | E B97, X-B97   |
| VAN HUA POL STORAGE                          | 2112    | N 10734  | E B93, X-B93   |

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IV